The Veterinary Record.

(Founded by William Hunting, F.R.C.V.S., 1888.)

No. 6. FEBRUARY 5, 1927. Vol. 7.

So-called Nervous Distemper.*

By L. P. Pugh, B.Sc., F.R.C.V.S. Sevenoaks.

It is my intention to-night to make my opening remarks as short as possible. This is not in any way because I undervalue the opportunity which this occasion affords. I am deeply sensible of the honour done me, but the subject chosen is one which will be best understood by us all if we have plenty of time for discussion by those who have seen different aspects of the disease at the same time. The writer of a paper owes it to his audience to be just a little provocative—and I hope to give satisfaction from this point of view.

The subject for discussion is "So-called Nervous Distemper." I do not think the adjectival "so-called" is required. I think it is nervous distemper, but I know there are others who have doubts on this point. Out of deference to these others, I have deliberately allowed a doubt to appear in the title of this paper. But I venture to hope that discussion will be confined to that particular canine disorder which has been prevalent in many parts of the country during last year and will not range over such subjects as meningitis of frankly septic origin.

I will now describe briefly this epidemic as it appeared in the Sevenoaks district. The incidence of nervous cases began to be most apparent about March and the epidemic quickly assumed large proportions. The cases of the earlier phases of the epidemic were extraordinarily diverse and generally severe in character. By June the cases became scarcer and when encountered were much milder in character and of a more transient nature. During the whole summer, individual outbreaks with mild nervous manifestation were observed.

There was a marked increase in the number of cases in October and November, but by this time fatal issues had dropped to about 5 per cent. as compared to 90 per cent. in the earliest stages.

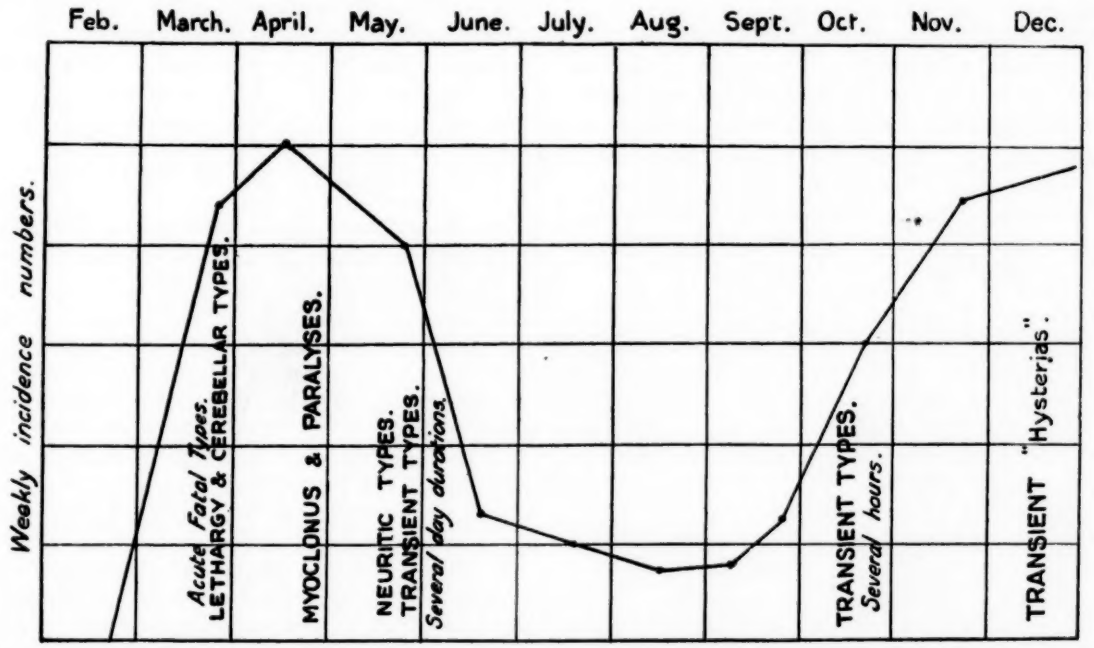
The epidemic can be illustrated diagrammatically by the following chart.

Subjects. There was no age immunity. During the period March to June, dogs between 2—4 years were apparently the greatest sufferers. During Autumn those affected were most commonly younger dogs generally under one year of age—*i.e.* the more severe the type of encephalitis the greater the likelihood of its affecting older dogs.

A previous attack of catarrhal distemper apparently does not confer immunity to the encephalitic form.

Symptomatology. *Primary Stage.* This may last from a few days up to three weeks, averaging ten days before the onset of localised nerve changes. The usual symptoms were weakness, shivering,

*Paper presented to the Central Division on Thursday, 13th Jan., 1927.



The notes indicate the type of case that apparently predominated at that time; but it must be understood that during the whole outbreak there have occurred isolated cases showing acute symptoms. The fatality in March and April was exceedingly high, whilst at the end of the year, owing to the large number of transient cases, the fatality has fallen to less than 5%.

depression, and high fever for two to three days, followed by a lower and intermittent temperature; conjunctivitis (without, however, profuse discharge); salivation (mucinous), with offensive breath; naso-pharyngitis, with watery discharge; rapid pulse; muscular and neuralgic pains; vomiting and thirst, sometimes of very severe character, for twenty-four to forty-eight hours; occasional distension of stomach; constipation, or rather inaction of the bowels at first, but later diarrhœa in a proportion of cases. Occasionally, none of these symptoms was actually observed, the first recognised indication of trouble being the onset of nervous phenomena. In still other cases, these nervous changes seemed to make their appearance only several weeks or months after a mild primary stage, whilst a considerable number of dogs showed the primary phase and then apparently recovered without obvious nerve changes. Of late in many cases no primary symptoms have been observed, or rather have been so mild as generally to escape comment, such cases only becoming apparent by exhibiting an occasional, often solitary, attack of a peculiar pyschic upset lasting for a few minutes up to half an hour.

Secondary or Nervous Stage. Before proceeding to describe this stage, it is interesting to record that the more highly-strung or sensitive the nature of the dog the more likely is he to develop nervous complications of a serious nature. This fact I have have been able to appreciate well during the past year.

The description of this stage is no easy task. It is true that the clinician soon learns to recognise particular types, but it is also true that some cases change from one type to another and there are many aberrant types which almost defy classification. Nevertheless, some form of classification has been found inevitable and it has seemed better to base this rather on the mode of progress in each case than on particular symptoms.

(*a*) *Hæmorrhagic Type.* A rare, acute fulminating type shewing petechiæ in the skin, occasional hæmorrhage subcutaneously, acute neuritic pains and death. This type was seen in March and only three typical cases were observed.

(*b*) *Transient Type.* The characteristic of this type is the rapid and complete disappearence of symptoms within from a quarter of an hour to a few days. Thus, a dog might one day show neuritic pains in one limb, together with paresis, the next day another limb might be affected and after that no symptoms of any sort persisted. In another case there might be for two or three days very definite myoclonus and thereafter complete recovery. This class also includes cases with curious pyschic symptoms of which the tendency to run away like a rabid dog until overtaken by a convulsive attack or exhaustion was one of the most surprising. If the dog was in a confined space, such as a room, he would rush about, knocking into things indiscriminately and yelling the while. After a varying period of distress, often accompanied by amaurosis, he would recover completely.

In others, a definite tendency to eat peculiar objects has been noted (a Dalmatian eating large amounts of chrysanthemum flowers, a Kerry Blue eating fuchsia, a spaniel tearing up and consuming large amounts of paper).

The psychic symptoms might equally be of a more negative type, the dog hiding under chairs and tables and shunning mankind etc., definite changes of character and growling or actually biting at owners.

(*c*) *Relapsing Type.* In general, this type was either neuritic or myoclonic or both, the characteristic feature being the tendency to periodic recovery and relapse. Not infrequently it eventuated in a paralytic phase. Cases showing neuritic pains in ears or at the back of the head, with frequent shaking of the head, were fairly common. There were a few cases of self-mutilation.

(*d*) *Paralytic Type.* In this, paralysis, commonly of the hind limbs, was an early symptom. This paralysis was flaccid and considerable wasting was present. If these cases were not quickly fatal, slow recovery under careful nursing was the usual result.

(*e*) *Progressive Type.* Here there are two sub-types widely different in their symptoms, but alike in that they usually progressed fairly rapidly to a fatal termination. The first sub-type is

1. *Lethargic Type.* The symptoms were usually lethargic at an early stage, but in one case (No. 16) the disease first manifested itself by paralysis of the hind limbs, then affected the forelegs and finally gave rise to typical lethargy and death. Case 10, a black mongrel aged two years, was presented for examination. Temperature 102·5° F., rapid pulse, and injected conjunctival blood-vessels. A tentative diagnosis of distemper was made. Two days later a slight pharyngeal cough developed. Nine days after the onset of malaise the dog appeared very drowsy. Although he appeared to spend most of his time standing up, yet he continually "nodded off" to sleep in this position. At other times he would be found asleep leaning against the wall. If spoken to he would awaken, but dose off again within a few minutes. If forced to move he did so with slight inco-ordination of movement. Nystagmus was present. He died in deep coma four days later. Histological examination of the brain in this case revealed lesions identical with those found in epidemic encephalitis.

It is quite possible that the profound sleepiness and stupor not infrequently observed to last only a day or so in some cases may be of the same nature pathologically as the above Case 10.

2. *The Cerebellar Type.* The cases in this group presented a curious form of head retraction. They had the appearance of continual effort to draw the back of the head more and more down on the spine. They commonly fell over backwards. They showed, more often than other groups, acute tenderness behind the ears, and such eye troubles as failure of

accommodation, nystagmus and definite strabismus were often seen. These dogs behaved as if blind or partially so. They were definitely ataxic.

SEQUELÆ.

During the earlier part of the epidemic, many of the cases were fatal or were destroyed owing to the change in temperament and physical changes encountered. Recently the transient forms have recovered, apparently without any obvious sequlæ. Between these two extremes, cases have occurred showing at times quite remarkable sequelæ, some of which are here noted.

1. *Choreiform Movements.* Sometimes permanent, at other times intermittent, affecting any single muscle or group of muscles in any part of the body. These movements become more exaggerated when the animal is fatigued or excited. The onset of œstrum in two cases caused a very serious exacerbation of these movements.

2. Paralyses, especially of hind limbs. This type commonly follows the peripheral neuritis cases, and although there is a definite tendency to recover slowly over a period of many months, residual paralyses did occur in some cases.

3. Definite moroseness or bad temper. This change of temperament appeared to be almost invariably an aggravation of a previous existing tendency in this direction.

4. Periods of considerable excitability. Definite complaint by two owners that their dogs, whilst remaining unduly quiet by day, would roam about the house till the early hours of the morning and then go quietly to sleep. Another dog, after a very mild attack showing only primary stage symptoms, became absolutely disobedient to his owner's orders, and at the same period would develop every few days acute nervous bouts, during which he barked furiously at an imaginary evil.

COMPLICATIONS.

(1) Herpes. During the early part of the outbreak herpes of the lips, conjunctivæ and eyes was noted, but was not common.

(2) Gastritis or gastric congestion was by far the commonest complication. In some cases actual ulceration of the gastric and duodenal mucosa has been observed. Even the mild transient cases showed definite derangement of the gastric functions, possibly due to altered nervous control.

MORTALITY. During the period March to July, the mortality was probably not less than 50 per cent. in cases showing local nervous changes. The death rate has fallen very considerably since July, owing to the increasing number of transient cases, and is probably not more than 5 per cent. at the moment.

PROGNOSIS. Very difficult. Has varied considerably during the progress of the epidemic. Some of the most severe cases, if persevered with, would apparently recover completely, whilst others showing the mildest or most transient of prodromal symptoms might terminate fatally and with great rapidity. The progress of the disease itself is so variable from day to day that one dare not give any great hope, and even after apparent recovery the animals' owners had to be warned against possible relapses should over-fatigue be allowed to occur, or any other gross alteration in the daily regime during the long convalescent period. In the more recent transient cases the prognosis is very hopeful, although in young puppies an occasional sudden death would appear to owe its cause to the action of the virus.

MACROSCOPIC CHANGES.

The naked-eye changes in the nervous system are slight; minute hæmorrhagic foci can frequently be detected in the region of the basal ganglia after a median incision, giving a "mottled" appearance.

Curiously enough, during the latter part of the epidemic larger or more obvious hæmorrhages into the brain tissue have been found in the fewer fatal cases than were detected in the March to June fatal cases.

Hæmorrhages were detected occasionally in the cortex and more rarely in the meninges. The chief focus of infection would seem to be in the grey matter, although occasionally lesions could be found in the white matter.

MICROSCOPICAL CHANGES.

Hall, in describing the histological changes met with in epidemic encephalitis, states:—

> "The virus shows 'its most arresting change' (Miller) in the reaction of the blood vessels. These are both vascular and perivascular, and occur chiefly 'round veins of a certain diameter, above all, round pre-capillary veins' (Marinesco). The vein is 'surrounded by a sheath of varying thickness, consisting of deeply stained nuclei of a round appearance' (Marinesco). This perivascular infiltration or perivascular 'cuff' is a regular phenomenon. The infiltrate occupies chiefly the Virchow-Robin space, and is composed of mononuclear cells . . . Whilst the fibres of the vessel wall are dissected by the cellular infiltrate and the perivascular lymph space distended by it, the intima in most cases remains intact . . . Besides the perivascular cuffs or adventitial infiltration, the affected areas are characterised by the presence of small scattered masses, microscopical in size, each composed of more or less loosely packed collections of small round cells." (See also *The Lancet*, January 2nd, 1926. p. 29).

This description is equally true of the encephalitic form of distemper. It may, however, be noted that the "cuff" changes were in the earlier severe cases generally very well marked both in the cranial and cord structures, especially if the animal survived several weeks. There was no sign of polynuclear cells placed perivascularly. The cells were apparently lymphocytes of the small round type. In some parts (*e.g.*, the thalamus) a somewhat diffuse neuroglia proliferation has been demonstrable, whilst in the same case such proliferation was not marked in other regions (*e.g.*, the pons). In the neighbourhood of affected blood vessels, the nerve cells become vacuolated and show differences in staining properties. There are also vacuolated areas in the brain sub-

stance in the same region. In other cases, numerous sections would have to be made to demonstrate any changes that could be considered pathological.

In the recent cases of transient nerve derangement, it is suggested that the pathology may be that of a transitory vaso-motor nature, subsiding before capillary thrombosis and infiltration sets in.

Discussion. The question arises whether this epidemic was one of distemper *per se*, or whether it should be regarded as due to some secondary infection grafted on distemper cases, or whether it is some disease unrelated to any hitherto described in dogs. I think these questions should certainly be discussed to-night. But I am going to leave the question to others, with the simple statement that I personally incline to the view that it is due to the distemper virus that has acquired, in some way, neurotropic properties, *i.e.*, that it is no secondary infection or new disease. I find nothing in the purely epidemiological aspect of other diseases to invalidate this view.

But I propose to deal at a little more length with that condition which has recently been described as epidemic or specific hysteria. I see nothing in any cases described which will serve to differentiate them from cases which I have myself seen during the epidemic occurring at Sevenoaks (*Lancet*, Nov. 6th, 1926, p. 950). It is also worthy of note that, amongst the literature of encephalitis in human beings, there may be found accounts of concurrent epidemics in which symptoms have been of that transient type which we are now discussing. (Reference to such epidemics may be found in the well-known work of Dr. F. G. Crookshank on "Influenza").

Such outbreaks are admittedly uncommon in man, and the same may be said of those occurring in dogs. But, because at one time the predominant symptoms of an epidemic of encephalitis should happen to be lethargy, at another paralysis, at another rabiform actions and at another "hysteria," there appears to be absolutely no reason why we should describe these occurrences as separate "diseases." Rather should we view them from the wider epidemiological point of view and, having done this, we should be able to correlate these outbreaks one to another and, what is more important, correlate them to the commoner catarrhal and gastro-intestinal forms of the disease.

By such study we come to appreciate the immensity of the problem that faces those who would try to solve the distemper question, and we begin to realise that the mere fact of isolating a virus in a test tube is only the commencement and not the end of a very intricate, albeit a very interesting, story.

At the conclusion of his address Mr. Pugh passed round for examination a number of microphotographs illustrative both of some of the macroscopic alterations observable in connection with some of the associated conditions (*e.g.*, herpes) and of some of the histological changes which had taken place in the nervous structures, consequent upon the attack of the affection under consideration.

Discussion.

Major T. Dalling, who opened the discussion on the paper, said: For bringing forward such a subject for discussion and for the clear, concise manner in which this hypothesis has been formulated, I am sure that Capt. Pugh is deserving of our very best thanks. The personal touch with this outbreak and the very careful records which have been kept, make the paper all the more interesting, and a theory built up from personal enquiry into a pathological condition must always hold our attention.

To my mind, the chief points at issue in this paper are: were all the cases described by the writer due to the same causal agent, and, if so, is this a form of distemper? Capt. Pugh's view is clearly stated in the words: "I do not think the adjectival 'so-called' is required. I think it is nervous distemper." It will be my endeavour to survey the article from points of view which may either support or oppose Capt. Pugh's theory.

Valuable work has recently been recorded by Dunkin & Laidlaw ("Studies in Dog Distemper," *Journal of Comparative Pathology and Therapeutics*. Vol. 39. Part 3. Sept. 1926), and a highly educative paper was read by Hamilton Kirk before the Southern Counties Division of the N.V.M.A. (*Veterinary Record*, No. 52, Vol. 6). I will take the liberty of referring to these articles in this criticism. I propose to deal with the paper from three aspects: (1) Clinical points, (2) Immunological points, and (3) Histological points.

(1) *Clinical Points.*—The course of the condition described as the primary stage might well apply, on the whole, to generally-accepted cases of distemper. Contained herein is one important point in favour of this condition being proved distemper, *viz.*, the fact that "a considerable number of dogs showed the primary phase, then apparently recovered without obvious nerve changes." If these cases occurred in the same kennels in which this so-called nervous type of the disease, accompanied by the preliminary phase or not, was endemic, then it would appear that all the cases were those of distemper, though exhibiting different characteristics. Keeping in mind the severity of acute distemper (and we are informed that the death rate here rose as high as 90 per cent.) the question of all-round infection in kennels must be taken into account: it seems hardly feasible to believe that in such an infected kennel a percentage of dogs would develop an entirely different type of disease to that raging at the moment and fail to show any symptoms of the prevailing condition.

The question of temperature curves deserves some comment. The curve exhibited by the writer shows high fever for two or three days, followed by a lower or intermittent temperature. One knows that Capt. Pugh has made a most careful study of the disease under discussion, and therefore one can rely on the temperatures having been recorded from the onset of the disease, or may be, especially in in-contact dogs, for some days prior to the appearance of symptoms. Dunkin & Laidlaw record "the temperature curve is of very great value and we lay particular stress on this in all mild or obscure cases . . . . The temperature rises abruptly at the commencement of the coryza, and in 24 hours may reach 105° F. or more. It remains at or above this level for from 1-2 days, and then subsides to near the normal level of 101·4° F. Within

two days a secondary fever period commences, and the temperature rises again. The second rise is frequently slower than the first, but it is usually much more prolonged. Its duration is exceedingly variable and we have records showing a duration of over three weeks." It may be unfair to compare the experimentally-produced with the natural case, but I feel that the in-contact dog under observation bears a considerable relationship to the experimental animal. It would be of more than passing interest to hear if Capt. Pugh has been able to record on any occasion the second febrile state and so bring this disease more easily under the experimentally produced type of distemper from that point of view.

The secondary or nervous stage has been well described and one is impressed with the variety of symptoms that may be met with. It is of considerable interest to know that similar transient types of disease have been met with during the course of human epidemics. If the lethargic and cerebellar types of the disease existed alone without any preliminary symptoms, in view of the microscopic appearance of sections from the central nervous system there would be much in favour of an ultravisible virus being concerned. Is it not possible that the cases described under these types belong to a special disease, and that the other cases described are those of distemper as known in its various forms? Against this, however, the fact to be borne in mind is that such cases occur in kennels simultaneously with cases of recognised acute distemper.

(2) *Immunological Points.*—An important point in the etiology of the condition would be that of immunity. Are dogs which have recovered from accepted clinical distemper immune to this disease, or *vice versa*? One knows there is a diversity of opinion on this point of immunity to clinical distemper, for Hamilton Kirk says: "In an article in *The North American Veterinarian* for August, Dr. Flynn positively states that one attack of distemper affords the recovered animal permanent protection. Against this I must just as definitely record that it does not necessarily do anything of the kind. Quite a number of instances have been encountered in which dogs have been treated one, two, or even three, occasions for typical symptoms of distemper." On immunological grounds it might be expected that one attack of distemper would confer an active immunity if distemper is due to an entity. It is interesting to note that Dunkin & Laidlaw make use of this point in testing dogs for previous experimental infection. If Capt. Pugh can bring forward evidence to show that one attack of the so-called nervous distemper confers immunity from an attack of clinical distemper in any of its varied forms, he will have gone a long way to prove his hypothesis. Immunity to this condition acquired from an attack of any of the forms of distemper would be equally good. I do not think the point is fully dealt with in the paper, but there is a suspicion that immunity is not produced from the note that "in still other cases these nervous changes seem to make their appearance only several weeks or months after a mild primary stage, etc."

(3) *Histological Points.*—The histological picture presented is that of a true encephalitis. Is this picture obtained in the usual distemper case as we know it? Dunkin & Laidlaw have found "no collection of small round cells, leucocytes or endothelial cells around the vessels" in their experimental animals except in two ferrets, both of which showed "nervous" symptoms. They "are inclined to regard these cases as atypical instances of distemper encephalitis."

The brain lesions found in Capt. Pugh's cases might very well apply to a true ultravisible virus infection, and, at first sight, it may appear that because others have not been able to demonstrate such encephalitic lesions in cases of distemper, this outbreak was of an entirely different origin. It may be well in this connection to consider for a moment the fact that in human medicine Levaditi and other (Levaditi, C., and Harvier, P. *Ann. de l' Inst. Pasteur.* Vol. 34. p. 911) have drawn attention to the fact that a virus may have a dual part to play: it may be epitheliotropic or neurotropic, *i.e.*, it may, under certain circumstances, attack purely epithelial tissue, while under other conditions it may choose nerve structures as its selective site. If this holds good for viruses met with in animal pathological conditions, might it not very well apply to the distemper virus? The usual train of symptoms exhibited by a dog affected with clinical distemper arises from pathological conditions of epithelial structures, *e.g.*, mucous membranes of the bronchi, trachea, etc. That would mean that the usual character of the distemper virus is epitheliotropic, attacking epithelial structures. It is also evident from clinical observation that it possesses neurotropic qualities which, under conditions unknown at present, are exerted to a greater degree than the epitheliotropic, which may even be excluded. I venture, then, to suggest that in the series of cases cited by Capt. Pugh a possible explanation is that the distemper virus had assumed neurotropic characters to a marked degree.

I have tried to deal with this paper from both aspects in the hope that these remarks may stimulate further discussion by members in a much better position to speak from clinical experience, and from the pathological study of distemper, than I am, as well as to give Capt. Pugh the opportunity of detailing some of his views on the subject at greater length than he has done in his paper.

Mr. HENRY GRAY: I thank Mr. Pugh for kindly bringing this subject forward—a subject to which I have given nearly 40 years' attention. I have, therefore, past experience to guide me in my statements.

I did not gather that Mr. Pugh had studied the disease *ab. initio.* My experience of distemper—and I said this 25 years ago—is that in the majority of cases the early stage is generally overlooked, and what are taken to be the phenomena of the disease are in reality the epiphenomena. Another of my early held views which has been strengthened by clinical observation is this: that the character of the disease varies according to the breed of animal, the locality, and the season. Some years—and especially during the last two or three years, when we have had wet seasons—the nervous form has been predominant; in some periods we have met principally with the broncho-pneumonic form; in others, again, with the enteric form; and in yet others with the eruptive form, which some gentlemen who have not had sufficiently long experience might say does not occur. My experience has been this—you generally get the nervous symptoms at least three weeks after the primary stage of distemper, or you may get them months

after apparent recovery. I have seen this condition develop 8 months after apparent recovery, and when the slight forms of distemper are overlooked, they are more likely to be followed by the exhibition of nervous symptoms because the dogs are exercised. The dogs fatigue themselves and their nervous system is more likely to be upset.

There is another type which I have seen which has never been described by any practitioner in this country, *i.e.*, general paralysis, in which the paralysis becomes progressive and may go on for months before the dog becomes unconscious or unable to move. This form of nervous distemper has been investigated by French veterinary surgeons and pathologists attached to an asylum. They have stated that the histological appearances presented by the nervous tissues in these cases are the same as those seen in cases of general paralysis of the insane, if differences in anatomical structure of the nervous system are allowed between the two species.

Personally, I think that all the different forms of distemper are due to secondary infection, and I am the more convinced of that by my own experience, and by the results of the investigations carried out by the ***Field*** Distemper Council. Before you can prove that the filterable virus of distemper produces nervous symptoms, you must prove that the nervous lesions met with in the later stages of distemper contain the filterable virus and no microbic life. Up to the present, so far as my knowledge goes, that has not been done. According to Carré and others it is difficult to find the filterable virus in various stages of the disease, and Bosc, of Montpellier, in his Comparative Studies of Sheep Pox, Distemper, and other complaints of that kind, is inclined to believe that the virus contains sporozoa and is bryocytic, and belongs to the class of disease termed the epithelioses.

Mr. Pugh is, I think, quite right about the mortality from the nervous form: it is the most fatal, but yet there are many cases in which, if you give them time, they will recover completely. Even those cases of ataxia may recover in time, and so may cases of paralysis—even after months. But, on the other hand, I have seen the nervous symptoms of distemper disappear and then, years afterwards, there has been a recrudescence of those symptoms.

Mr. Pugh has made a statement about those cases of so-called hysteria. I have seen any number of them in puppies which have had distemper afterwards, and others in adult dogs which have previously had distemper. Although it may be occasionally witnessed during the course of distemper it generally has no connection with that disease.

As to the temperature, I have studied distemper from its beginning—in puppies running with dogs down with distemper, following their progress day by day. In some cases which have never shown any symptoms of distemper there has been a rise of temperature: all you have to do then to bring out the symptoms of distemper is to give them a great deal of exercise.

The reasons why I think distemper is so fatal a disease are, firstly, because it is not recognised in its earliest stage, and secondly, because it is not rationally treated. If measles in children were to be dealt with as distemper is dealt with, the child mortality from measles would be as high as is the dog mortality from distemper. Where measles is not recognised early and where the children are consequently allowed to run about, especially in wet, chilly weather, you get similar complications or manifestations to what are seen in distemper. It is very difficult to say that there is more than one disease concerned in what we generally term distemper. If you study human medicine and take up the infectious diseases, you will find that human beings have similar pathological conditions in certain cases, with secondary complications, as occur in distemper—in piroplasmosis and trypanosomiasis you will get all the same symptoms, even to ulceration of the eyes. I think, therefore, that until the pathologist settles upon the true cause of distemper it is difficult for the clinician to say "this is not distemper," or, "that is distemper." (Hear, hear.) Twenty-five years ago I made the statement that half the pathology of the dog is bound up with distemper, and have now no reason to retract that. If it were not for distemper we should know very little about the nervous diseases or the skin diseases, or the diseases of the eye, etc., of the dog.

It is good that the younger men of the profession should bring their particular studies of distemper before the notice of the profession, but there has been nothing new in distemper, so far as its clinical study is concerned, for a century. Some viruses or virulent cultures of microbes will produce all the symptoms that we see in distemper. Many years ago I was using the *Pasteurella canis* in virulent culture, and I could produce all the symptoms of distemper—even chorea, broncho-pneumonia and the eruption—but I could not produce permanent immunity to natural infection. I look upon distemper as the analogue of swine fever, influenza of the horse and roup of the fowl. The viruses concerned are similar, and their effects are similar, if you take into consideration the way in which the animals are treated or their environment. If you make a wide study of influenza of the horse you see that it is analogous to distemper of the dog, in its wide sense; in many cases of distemper you see all the symptoms of roup in the fowl. If you study one disease closely you will have studied the common ground of the lot, and when the etiology and pathology of distemper are worked out, the key to all this class of disease will have been discovered. (Applause.)

Major F. T. G. HOBDAY: I am so puzzled with this so-called nervous distemper that really I feel that I cannot say anything about it. I used to think that I knew a lot about the different forms of distemper years ago, but as one gets older one feels that one knows very little in regard to them.

I have seen these cases of Mr. Pugh's, and one wonders whether or not one is correct in calling the condition "distemper." Its sudden onset is not like the old-fashioned distemper, and another curious thing is that I have seen a bitch suffering from all the typical symptoms he has described, and yet her puppies having never shewn the slightest sign of illness, seeming to possess some immunity. The term "encephalitis" expresses something to us, but it does not express anything as much as we could wish should be described in this con-

nection. One dog I know of had distemper distinctly in February. Apparently it got over the attack well, except that every now and again we were called in because there were little relapses of diarrhœa trouble. In June the thing fulminated again. The unfortunate part of this was that I had previously told the owner that the dog would never have the disease again, and in June I had "to eat my words." This animal on the second occasion showed great malaise—running from the eyes and nose, refusal to take food, etc. I think it was a relapse from the previous trouble and I am certain that distemper had been the origin in this particular case. At the present moment the animal has developed chorea—a matter of ten or eleven months after the original onset of the disease.

As Mr. Gray has said, those who are studying distemper have got in front of them one of the most intricate problems it is possible to bring before any pathologist, either veterinary or medical, and I think the right thing has been done in placing distemper research in the hands of a body of men like the National Research Council, who have the resources of both branches of the profession of medicine at their command, and who have clinicians to help them.

I should have liked Mr. Pugh to have mentioned something of what is to us as clinicians of the utmost importance, and that is the question of treatment. To do so is, of course, rather a matter of "putting the cart before the horse," but it is most important that this question should be discussed, and I hope Mr. Pugh will give us the benefit of his experience in this, when he comes to give us his reply. Personally, I have nothing to give you that is new in the way of treatment. One tries all kinds of new drugs, but one goes back mainly to the old-fashioned methods, including good nursing, and the treatment of symptoms as they arise. I have, however, found one drug to be of great use in many cases, though it may not, of itself alone, be responsible for the results it has given; but it certainly is a drug which, when administered, has given better results than any other I know—that is aspirin, or some of the preparations of aspirin. I think that one gets better general results with that than with any other drug at our disposal at the present time.

Capt. DUNLOP MARTIN: I should like to thank Mr. Pugh very much indeed for his contribution to the study of distemper. I am afraid I have no criticism to pass on what he has said, because I have been fortunate, perhaps, in not having met with many cases of the kind which he describes. I have, however, observed two or three cases recently which perhaps have been such as he describes, but they have been cases treated by the owners themselves, and in which I have been called in when the animals have been *in extremis*. I was much struck by what Major Hobday said just now with regard to puppies never having shown any symptoms which one could distinguish as those of distemper, yet seeming to possess some sort of immunity. I had a case in point some few weeks ago. A Cairn terrier bitch had three puppies and another bitch had five. I was called in to see the five puppies when they were 10 days old, and they really showed the clinical picture of distemper. They were just treated with the best of nursing, but they all went under. Those puppies had been in the same room with the first bitch that I mentioned had had three puppies, and those three puppies have up to now—a few weeks later—shown no symptoms whatever. I too shall certainly be very interested to hear what Mr. Pugh has to say in regard to treatment.

Capt. CORNISH-BOWDEN: I have nothing useful I can add to Mr. Pugh's excellent paper, or to the discussion which has taken place. Mr. Pugh seems to have been rather unfortunate in the cases with which he has met, because these cases of so-called hysteria (a bad name, I think), are cases we see around London every day. Why he should couple this complaint with distemper passes my comprehension: personally, I think it has nothing whatever to do with it.

I have two cases in my mind which I think go far to disprove the contention that these conditions are connected. One was in a Labrador bitch which had been sent up from Anglesea, her puppies being just off her. She was allowed to go to her puppies at night only, and she was taken out for shooting work during the day. The first thing noticed by the owner was the onset of paroxysms of terror, and I believe that this bitch had the same complaint as is described in American veterinary literature as dementia. That is, I think, a better name than hysteria, but the best name of all is that employed by my kennelman when he says "they see spooks, sir!" (Laughter). That is the impression that they give one—they suddenly appear as if they had been very frightened, or hit.

The other case was in an Alsatian bitch. She had had distemper in a most typical form, with all its generally-accepted appearances. She also has a litter of puppies. She "saw spooks" a little over a week ago, but she has not had a return of it since, and the puppies are perfectly healthy.

I think the disease is due to some virus which is probably fresh amongst dogs in the same way as encephalitis lethargica is reasonably fresh in human pathology. We heard nothing about that 20 years ago, and I think this is something which has yet more recently come amongst dogs. I have not had, in my cases, the bad run of symptoms described by Mr. Pugh in his paper. As a rule, the dogs get two, three, or perhaps a few more attacks, during which they go blind—the pupils appear to be in a temporary state of amaurosis. An attack lasts anything from half-an-hour to two hours, and it may not be repeated for a week. I confess that I have had one or two fatal cases: I have never seen them die; they have usually been found dead in the morning. It has been my impression that in these fatal cases the dogs had a fit in the night and died during it.

It was only last Spring that I had a good many letters from Lancashire concerning this disease, which was described most minutely as occurring in three kennels of Alsatians. One of these belonged to a doctor, in one of his letters to me he said: "I have no idea as to the cause of the trouble; the only thing I can tell you is that I have found a cure, and that is feeding them a small amount of whole-wheat bread. After doing this, all their fits and other nervous symptoms apparently ceased." He circulated this knowledge as to the effect of feeding wholemeal bread to the dogs, and I have heard from him that it has apparently wiped out the complaint in that part of Lancashire. Whether there is anything in the wheat germ, or the saline

content of wholemeal bread, I cannot say, but that was his experience. I have tried it, but, as I have said, most of my cases get well anyhow.

Mr. HENRY GRAY: If I might, I should like to add a few more remarks. My experience has been that if you get an outbreak in a kennel, most of the cases resemble one another. There is a great deal in the breed, and Cocker spaniels and the Japanese spaniels almost always show the nervous type.

Capt. MACARA-FINNIE: I have a suggestion to make, in all seriousness, though some of you may be inclined to laught at it: Are some of these cases which are met with in one's practice due to hæmorrhagic septicæmia? Veterinary surgeons in America have been saying that hæmorrhagic septicæmia occurs in dogs, and it seems that at first these cases are apt to be taken for cases of the nervous type of distemper. They have been suggesting treatment with the injection of anti-hæmorrhagic septicæmia horse serum. I suggest this line of treatment to Messrs. Pugh and Dalling for examination and possible trial during life.

Mr. G. H. LIVESEY: I would like to express my admiration to the author for his paper, and particularly for his classification of these nervous symptoms. They appealed to me very strongly indeed, for the clinical picture he has drawn is almost perfect. I may say straight away, at the outset, that I agree with his hypothesis, although I must own that I have no experience of the present outbreak, but, from an extensive experience of distemper, the picture that he draws confirms the views which I have always held. I should certainly say that the symptoms that are described are those of distemper, pure and simple. As to the outbreaks occurring periodically, as they appear to have done during the past year, I think that is probably largely due to climatic conditions. The influence of cold winds and damp weather is particularly marked in the run of distemper cases. One sees it also even in good seasons where, in individual cases, the owners have been careless. For instance, where animals have been suffering from bronchial trouble, or skin trouble, a cold bath, a drenching, or something which stops the activity of the skin and mucous membranes is particularly liable to bring on the onset of nervous symptoms. Possibly that may explain in some measure, what Mr. Dalling said when he referred to the manifestations of distemper being sometimes in the skin and mucous membrane structures and sometimes in the nerve structure. Surely it is possible that the virus, acting on the whole system, may exert its influence more on one type of structure than another, the choice being largely determined by external conditions.

There is one idea that has always occurred to me (I speak entirely, of course, as a clinician), and it is that if distemper is an invisible virus, as we believe it to be, circulating in the system, may it not show its manifestations to some extent governed by other organisms which may be present in the body? For instance, if organisms affecting the lungs are present, the distemper virus will intensify their action and bring on pneumonic symptoms. In the same way, it may act only in the exhibition of nervous symptoms. Undoubtedly, in the cases cited by Mr. Pugh, and which we have all seen, the condition is an encephalitis and surely there may be present some secondary ultra-visible organism which decides that the manifestation of distemper shall be shown in the brain and nervous system generally. That is how this matter appeals to me, simply as a clinical observer.

I hope Mr. Pugh will have something to say with regard to the treatment mentioned: that is, of course, always the most interesting matter to the clinician, because it touches him in so many ways. My experience teaches me that the best cure for distemper is rest and quietness, and freedom from over exercise. The majority of these nervous cases benefit most from rest and, very often, from the exclusion of strong light. With regard to drugs, I agree strongly with what Major Hobday has said that probably in the early stages aspirin is a very useful drug, but good nursing, and rest and quietness are, I think, our sheet anchor.

Major HOBDAY: I should like the President, if he will, to elaborate what I am going to say, for I really think we are on the track at last. He handed over to me, a little while ago, six dogs—five of which were immunised, as they thought, by the method which they have discovered at Mill Hill. For 32 or 33 days my partner and myself did our utmost to give these dogs distemper. The control dog went down on the fourth day. We nursed it as well as we could, giving it every possible care and attention, but it died of distemper. The others, I think I am correct in saying, show no symptoms of distemper whatsoever. Of course, one cannot say much from one's experience with five dogs, but it is very, very encouraging. Those dogs will be watched for the rest of their lives and they will be tested from time to time.

Major KIRK: I have listened to this discussion with the greatest interest, because the subject is one which has claimed my concentrated attention for the last 15 years. I read everything I can find concerning distemper, but the more I study it the less I feel I know. Like Prof. Hobday—I am mystified.

With reference to this so-called hysteria, Quitman, of Chicago, wrote an article last March which he entitled "Fright Disease, or Hysteria." He considered it due in some cases to gross dietetic errors, and that in others it was associated with distemper. Now, Mr. Cornish-Bowden relates instances of apparent definite cures in such cases (which were unaccompanied by any of the classical symptoms of distemper) by feeding liberal quantities of wholemeal bread, which as we know contains calcium phosphate. If these attacks be not connected with the distemper virus, is it not likely that the etiology is associated with calcium or vitamin deficiency—rectified perhaps by affording these substances in the animal's food. We know that parathyroid substance and calcium are frequently given together to patients which evince certain nervous symptoms, and with good effects.

On the other hand, the cause may be hypopituitism or hypothyroidism. From our knowledge of the detoxicating action of the thyroid hormone, it would appear that, in its absence, toxins gain the upper hand. It is, at any rate, universally recommended that thyroid extract should be applied against some epileptiform cases and against eclampsia.

I am not sure that Capt. Pugh is justified in creating a relapsing type of distemper as a definite type, as I believe all or any types of the disease will relapse if the patient is

exposed to adverse conditions. When a dog has nearly recovered people say : " Oh, it's a nice day, I'll take him for a walk." Or perhaps they give him a bath. Such circumstances tend to relapses by lowering vitality.

As to treatment, there is no doubt Mr. Livesey is correct in placing most importance upon absolute rest, quiet, and nourishing food. If people would only treat their sick dogs upon the same principles as they would treat sick children they would have much more success. Nobody would think of allowing a child even out of bed if it had a temperature, and yet they think that dogs can be run about or left out in the garden with impunity. Personally, I insist upon strict captivity, not even allowing a dog to be taken outside to relieve itself. The floor of the sick room must be suitably prepared to meet the circumstances. If warmth, rest, good hygiene and nursing are afforded, these constitute the best treatment.

Dr. HARRY WADD, speaking at the invitation of the President, cited several interesting cases of the nervous type under discussion, which had been under the care of Mr. CLARKE, who followed, saying that a number of them occurred in dogs which were known to have had distemper. His treatment had been to give them a grain of morphia, which quietened them for 12 or 14 hours, and they had all recovered. There had been no recurrence.

Professor WOOLDRIDGE : I, too, would like to add my thanks to Mr. Pugh for ventilating this condition, but I may at the outset dissociate myself from his conclusion that it is definitely a phase of distemper. I think we may all agree that we may and do get a simple form of distemper that may become complicated by secondary infections. Some of these secondary invaders may of themselves become primary causes of distemper, and as an instance of that I may mention the *Bacillus bronchisepticus canis*, which may cause a broncho-pneumonia quite independently of distemper. In the case of the nervous form of distemper we may get a simple form of distemper complicated by these nervous conditions which are due to some secondary cause. It seems to me quite possible that these organisms which usually play the part of secondary invaders may, under certain conditions, be responsible for the onset of an acute primary infection, and I have come to the conclusion that this is the sort of thing we have got here. The symptoms, in the dogs that have been described by Mr. Pugh, have all come before my own personal observation, and I think that the way in which he describes and classifies them gives strong evidence of the very excellent powers of observation he has brought into play in these cases.

With regard to the fulminating and the transient types, I may say that in my experience nothing of that sort has ever yet occurred in any case of distemper with which I have met, and, as Mr. Gray refers to the number of years in which he has been observing these things, I may point out that it was not yesterday that I first became acquainted with the disease under discussion to-night. But I cannot understand how people can call it hysteria. (Hear, hear.) It occurs both in males and females, and it has no association with the genital apparatus. As to what name should be given to it, I usually call it an acute form of neuralgia, but I think that in some instances it is associated with meningitis, encephalitis and myelitis. Certain it is that the primary symptoms of the fulminating type commence with neuralgia, with an intensely painful hyperæsthesia of the skin, and the loins, or other areas, as the neck. The onset of these cases may have something in common with the sudden onset of acute lumbago in the human subject. That suddenness and severity of onset differ very clearly from anything that occurs in distemper complicated with nervous symptoms. I have had cases in dogs that had had distemper in a bad degree a year or two before, and have since been living in contact with puppies and other dogs that are not known to have had distemper, and the latter have not contracted the affection.

We have, on one or two occasions, either had papers direct from our President or seen writings emanating from the Distemper Research Council, and I have never seen any reference to an acute nervous affection of this type in any dog under their observation, and I cannot conceive that, if the claim that this affection is a phase of distemper is one that can be substantiated, their observations should not include a single instance of an affection of this type, which they do not.

As to treatment, I must say that the various salicylates have given the best results. In the earlier acute stages I combine this treatment with the administration of bromides in large doses. In the later stages I substitute Donovan's solution for the bromides.

The reference to foods and feeding brings it to my mind, that in many respects there is a similarity between this affection and beri beri which, as you know, is due to the lack of the husk in wheat. It seems to me that in some of those cases we may have actually a form of beri beri, and it is in those instances in which we may find some improvement from the use of wholemeal bread. In one outbreak, in which I was associated with Mr. Foreman, of Tottenham, we got a combination of symptoms—the catarrhal form of distemper, *plus* the nervous symptoms under discussion in some, and in others, only this nervous type of condition. I admit that in that outbreak there appeared to be a possibility of an association between the two diseases from one of the dogs having been away to a show, and developing catarrhal symptoms a week after returning home. Two out of the eight others developed catarrhal symptoms, but they all showed the typical nervous symptoms sometimes associated with diarrhœa.

The mortality from this condition in my cases has not been as high as in those met with by Mr. Pugh. Some have been restored to complete physical activity, others have only improved very slowly over a long period of time.

I feel that Mr. Pugh has done us a very great service in introducing this question, but I fear it is one the discussion upon which we have had to scamp, more or less, owing to the very limited time at our disposal.

Mr. R. E. GLOVER : I had the opportunity, some time ago, of examining the brains of a series of dogs which had died of distemper. Many of these dogs had shown nervous symptoms, and in no case could I find any changes such as are shown in the microphotographs, which Mr. Pugh has sent round. Kenny, in a recent article, states that he was able to produce nervous symptoms in dogs with a pure distemper virus, but he makes no mention of any cases in dogs at all resembling encephalitis lethargica in man.

Dr. GORDON WARD, in the course of a masterly contribution to the discussion, of which we regret that we have only space to record the main outlines, said that he had seen many of Mr. Pugh's cases and had also seen many cases in the human subject in Mr. Pugh's district which presented very similar features. One form of the affection had been fairly closely studied, and they had formed some idea of the sort of process they were up against, but so soon as they began to give it a name they were bound to beg the question. But they knew that, in the first place, there was an antecedent catarrhal condition in so many cases that they felt that it must have some association with the affection. When they met with the catarrhal condition they called it influenza. Following that condition, at a varying interval, came those curious nervous symptoms. They knew by examining human brains that the brain showed not so much the presence of a virus as the presence of some reaction to the effects of a virus on various parts of the nervous system. Any part of the nervous system might react to the virus in that particular way they had seen in the microphotographs shown that evening.

None of the speakers had suggested that in this affection of the canine species they might have two diseases—one affecting the legs, and one the head: in that they showed their common sense, for he had to admit that the medical profession recognised two diseases in the human subject. They were on more enlightened lines, for it had to be admitted that not only might that disease affect the nervous system at any point, but it might affect it in any degree of intensity. It might be in evidence for a long time, or the virus might remain latent and a relapse occur after one or two years. That was a rough outline of the nature of the disease as it occurred in the human subject, and he thought they would say that it was recognisably the same disease as that with which they were dealing. Dr. Ward quoted the popular phrase: "the thing has never been heard of before," saying that such a remark in connection with the disease under notice was on all fours with its application to cocaine addiction, which was rediscovered after a lapse of 25 years. Encephalitis lethargica was described some 300 years ago, and doubtless they had had this canine disease before, but, having rediscovered it, had sought to re-label it after having forgotten all about it.

Amongst the many interesting questions which could be raised about the disease they were met to discuss that evening was: Could the disease be transmitted? With that was bound up the extremely pertinent question: Was the disease distemper, or was it not? In human pathology they called that condition a disease. It was not: it was a symptom and nothing more. Moreover, it was a symptom common to a great number of human diseases. It occurred occasionally in smallpox, and if the disease of smallpox could occasionally take on an epitheliotropic form it was not surprising that distemper should occasionally assume an epitheliotropic form. He had a colleague who always inoculated his dogs with calf lymph, and he had had no distemper amongst them for 20 years. If they took influenza and encephalitis in the human subject they obtained substantially the picture that the veterinary profession obtained with distemper, and their encephalitis. He did not say they were the same disease, but it did point to a common clinical picture. He thought they were deeply indebted to Mr. Pugh for bringing forward such an excellent example of what they had all been wanting to prove in the medical world.

The PRESIDENT wound up the discussion by saying that it was a great pity that distemper should be looked upon by so many as a complex, for that view only tended to muddle things and made "confusion worse confounded." He believed that distemper was a simple disease with a single cause. To increase the confusion—quite unintentionally, of course—Professor Wooldridge had mentioned beri beri and, no doubt, was quite content with this comparison. The question, he thought, centred itself around one point—what was distemper?—and it did not help if to every condition with which they met in the dog they applied the name distemper. Their medical friends had given them instances of the multiplication of terms which so involved the study of nervous disorders in the human subject, and the members of the veterinary profession were entitled to have, and no doubt had, the sympathy born of this experience in their attempts to solve the distemper problem.

At least one of Mr. Pugh's cases showed curious herpetic eruptions on the lips: he thought that was very significant indeed. They had never seen, in any of their brain cases of distemper, the perivascular condition which was so obvious in the microphotographs sent round by Mr. Pugh, but there had been cases, both in dogs and ferrets, when, for some reason or other yet to be explained, their virus had attained neurotropic characters. They had succeeded in reproducing distemper in dogs and ferrets from the cerebro-spinal fluid of a ferret that went down with the nervous type.

The question of immunity, as Mr. Dalling had rightly said, was one of great importance. He personally thought that Mr. Pugh had been dealing with possibly two conditions, one being an encephalitis of at present unknown origin, and the other distemper. He saw no reason why those two conditions should not co-exist.

With regard to the immunisation of dogs against distemper to which Major Hobday had referred, it was the fact that six dogs, five immunised and one control, mixed with acute distemper cases, that the control developed distemper and was destroyed as being incurable, and that the five immunised remained perfectly healthy and are alive and well to-day.

THE REPLY.

Capt. PUGH, who, in consequence of the short time remaining, had to make the briefest possible reply, said that he thanked the Fellows exceedingly for the way in which they had received his paper and for the way in which they had "let him off" after his somewhat provocative remarks. He was afraid he could not attempt to answer a tithe of the questions raised—he would just say that he did really believe what he had said. He did think that it was conceivable that in some circumstances the virus might be epitheliotropic in distemper, while in others it might acquire a neurotropic activity. That was nothing against his argument because, if it was neurotropic in character, it was very similar to rabies. They did not

know anything at all about the incubation period of a virus that had neurotropic activities.

In regard to treatment, he was quite certain that of all the drugs he had used there was none that influenced the course of the disease which he had brought to their notice, as did aspirin. In the nervous type he invariably administered calcium lactate and aspirin. Another medicament which he had employed a good deal, especially if the attacks were specially severe, was posterior pituitary extract—sometimes the dogs regained a normal gait in 24 hours. The rest of the treatment was rest, quietness, no changes of temperature, and careful dieting. The general line of treatment was to keep the bowels clear as much as possible, using enemata instead of purgatives, and keeping the kidneys functioning. This tended to prevent any form of relapse from the activities of secondary invading organisms.

Mention had been made of the occurrence of meningitis due to the *Bacillus bronchisepticus Ferry*—that was quoted by Wallis Hoare, and Hutyra and Marek. He could not, at that time of night, say anything more, but he hoped that someone would re-introduce the subject at some later date, when they could carry on the discussion.

"Field" Distemper Council Report.

The Duke of Portland, the president of the *Field* Distemper Council, in an introduction to the report of the council for January, 1927, states that a very valuable advance has been made, since the original appeal of the council for subscriptions on February 1, 1923, in the scientific knowledge of canine distemper, one of the most prevalent and most obscure diseases. Without the loyal and invaluable co-operation of the Medical Research Council (under the direction of the Privy Council) no advance would have been possible. The Council's programme had involved the invention of entirely new methods of research and progress. The final step might be long but was now assured.

A summary of the scientific reports states that what is called the induction of active immunity is a process of accustoming the cells of the body to put up their own defence against a particular kind of invading organism. One method of doing this is by injection of the dead organisms, as in the case of the anti-typhoid inoculation so successfully used during the Great War. This process usually has to be repeated within a period, somewhat uncertain, of months or years. The alternative method is the injection of the living organisms in such a way as to produce only a mild attack of the disease. This gives an immunity which is durable and often permanent.

In the case of distemper the use of these methods is at present handicapped by the absence of known means for cultivating the virus of the disease outside the animal body. Test-tube cultures of the organism would provide a source of more abundant and more satisfactory material and would permit of the accurate measurement of dosage. So far, however, the investigators have had to use crude preparations, of unknown and inconstant potency, prepared from the spleens of infected ferrets. A crude vaccine prepared in this way has, nevertheless, proved efficient in protecting ferrets, which are subsequently able to withstand inoculation with massive doses of living virus without showing any symptoms. Success has been obtained in over 70 per cent. of the experiments, and the failures are probably attributable to the inherent uncertainty of the present crude method.

The use of this vaccine alone, the summary continues, has proved less efficacious in protecting dogs. There is, however, reason to believe that the inoculation of dogs with killed virus from ferret spleens does increase their resistance to some extent, if only temporarily, so that subsequent inoculation with living virus produces only a mild and modified form of the disease, which in its turn should produce lasting immunity. While the progress made in the investigations is very encouraging, the work is still in a purely experimental stage, and there is not yet a method of immunization suitable for trial in ordinary practice. The material necessary for vaccination is difficult to prepare, and is necessarily limited in amount. It is crude and unstable, and its strength and quality are liable to great variation—as between one preparation of it and another. It must, therefore, not be thought that the results obtained in the scientific experiments could as yet be repeated under less favourable conditions.

The fund has a clear balance in hand at present of £5,000, and, if support is forthcoming at an average rate, the council feel sure that the remainder of the £25,000 originally estimated as the final cost of their research will be forthcoming. The bankers to the fund are Messrs. Coutts and Co., 440, Strand, and the organizing secretary is Mr. E. W. Moss-Blundell, Windsor House, Bream's Buildings, London, E.C.4.—*The Times.*

Lynx Raids Scottish Flocks.

"Scottish farmers, mystified by raids on their flocks, have found" says *The Daily Express*, "that their sheep have been killed by a lynx, 'the tiger of the North.'

"Sheep and goats were attacked in the wild mountain districts of Inverness-shire, and traps were set to catch the mysterious marauder. Tracks like those of a gigantic cat were found in the soft mud of the moorland bogs.

"Shepherds reported having seen an animal like a leopard, but without spots on its coat, stalking the sheep in the heather.

"A farmer who set a steel trap on a mountain side was astonished to find the following morning that he had captured a large fierce, yellow animal of unknown species. He obtained a gun and, cautiously approaching, shot it.

"The body was sent to the London Zoo, where it was identified as that of a lynx, thick-set, with tufted ears, and powerful forelegs and paws, such an animal as could hold at bay a pack of hounds.

"Lynxes live in rocky districts and hunt by night," said a natural history expert to a *Daily Express* representative. Their wonderful powers of vision were the origin of the epithet "lynx-eyed."

"When seeking its prey the lynx lies motionless for hours on same rock or branch of a tree; hence it is seldom seen.

"It is found in Europe in the Alps and the Carpathians, and more often in the Caucasus. The last specimen was killed in France 100 years ago.

"Two other specimens have been killed in Scotland recently. How they reached there is unknown, but it is believed that they must have escaped from some travelling menagerie."

The Veterinary Record.
5th February, 1927.

"DISTEMPER."

The interest with which research into the etiology of distemper is followed is made evident by a study of current veterinary literature, and there is no doubt that slow but valuable progress is being made in elucidating the pathogenesis of the disease. The work carried out by DUNKIN and LAIDLAW, and recently published, merits the careful attention of all those who are interested in the disease.

In our present state of knowledge, it would appear that the view put forward by CARRÉ that distemper is caused by a filter-passing virus is a correct one, and is largely supported by recent experimental work, and that the rôle of the *Bacillus bronchisepticus* of M'GOWAN, FERRY and TORREY is that of a secondary invader of very ubiquitous character. It would appear that distemper *per se* may be regarded as an infectious disease running a regular course which is characterised by catarrh of the mucous membranes, and, in the absence of secondary infection, not accompanied by a heavy mortality. This, however, may be regarded as the laboratory conception of the disease and not necessarily the type met with in natural infection, where the predominant symptoms may be those of secondary infections referable to the respiratory, digestive or nervous systems.

In the experimental work carried out by DUNKIN and LAIDLAW these secondary infections seem to have been entirely eliminated and it is of interest to note that these workers, when dealing with experimental distemper, have not met with the *B. bronchisepticus*.

Methods of infection have been very closely investigated and these workers have shown the possibility of aerial infection over short distances. KIRK, in an interesting paper recently published, also draws attention to this point and it would appear that the question is of considerable importance, since it has been very generally held that the usual mode of natural infection was by way of ingestion and that aerial infection played no part in the dissemination of the disease. It seems that, given favourable conditions, air-borne infection can, and does, occur, not only in experimental, but also in natural conditions.

From the view-point of the clinician, recent observations on the so-called nervous type of distemper are of the greatest interest since it is with this type that the heaviest mortality of the disease is met with and any therapeutic measures seem of little use. PUGH, in an article recently published in the *Lancet*, has focussed attention upon an epidemic encephalitis of dogs and has pointed out the close similarity of the condition with *encephalitis lethargica* of human medicine. It is our experience that a similar condition arising during an epidemic of distemper has been widely spread during the last three months. The development of nervous symptoms in these cases has been preceded by gastro-intestinal catarrh ushered in by a primary rise of temperature, a continued rapidity of pulse and rapid emaciation. In practically all cases diarrhœa was early established and persistent, whilst respiratory symptoms were in abeyance. PUGH draws attention to the similarity of microscopical changes in the nervous tissues seen in *encephalitis lethargica* and the encephalitic form of distemper, these principally consisting of an infiltration of the meninges and perivascular sheaths, but in this respect it must be pointed out that the findings of DUNKIN and LAIDLAW dealing with the experimental type do not quite correspond. However, allowance must be made for the comparison of a virulent natural infection as opposed to a purely experimental one.

In the paper recently read by PUGH before the Central Division (and which we publish in this issue of the *Record*) he points out that in cases occurring later in the series, no primary symptoms have been observed, and that such cases have only become apparent by the exhibition of an occasional, often solitary, nervous attack. If we regard this exhibition as one of nervous distemper, it must be that the primary symptoms have been so slight as to escape observation. That such is frequently the case will be accepted by many clinicians. Supporting this fact is the common experience of meeting with cases exhibiting the chorea syndrome of distemper in which the preliminary symptoms have not been observed to any extent. It is feasible that the virus might in some instances remain latent for some considerable period before manifesting itself by nervous phenomena.

One of the most interesting remarks made by PUGH referred to the fact that in some instances herpes of the lips, conjunctivæ and eyes was noted. The significance of this is, to our mind, considerable. The recent work of LEVATIDI and his colleagues dealing with the virus of herpes has produced much information concerning the action of an ultra-visible virus having neurotropic properties. An encephalitis of rabbits has been produced with virus obtained from a case of human *encephalitis lethargica* and there has been noticed a similarity of action upon the cornea of rabbits, both of the virus of rabbit encephalitis and of the virus of herpes. It has also been observed by these workers that rabbits affected with a herpetic keratitis may develop a nasal discharge which contains the herpes virus.

It has been suggested that encephalitis in the dog should be regarded as a specific disease predisposed

to by distemper rather than as a manifestation of distemper itself. As against this contention, PUGH has pointed out that during an epidemic of distemper it is quite common to meet with cases in which the catarrhal and nervous symptoms appear at the same time and that such cases make the acceptance of the encephalitis as a specific entity a difficult matter. That this latter is the case will be found to be generally accepted by clinicians dealing with distemper in the natural state, and it has long been held by them that the specific distemper virus has a natural predilection for the nervous system and that it is capable of producing early degenerative changes in the brain and spinal cord. Moreover, certain observers have found diffuse degenerative changes in the nervous system in cases where only catarrhal symptoms were manifested throughout the whole history of the disease.

It would appear to us that the view put forward during the discussion on PUGH'S paper, namely, that the distemper virus may possess both epitheliotropic and neurotropic qualities, carries considerable weight, and that under usual conditions the virus may be mainly epitheliotropic and that only under certain circumstances does it assume marked neurotropic characters. There is reason to believe that the different types of ultra-visible virus are closely related and are governed by similar circumstances as regards their pathogenicity; moreover, the complete elucidation of one of the diseases produced by such a virus will supply a common key to the remainder of the group.

Whichever view may be held as to the nature of the conditions under discussion, it is our considered opinion that the term "hysteria" should not be used in describing the nervous syndrome—hysteria being reserved only for a particular nervous manifestation, quite apart from either of the conditions described.

There would appear to be much room for further investigation on the seasonal occurrence and virulence of distemper as met with under natural conditions. In the case of *encephalitis lethargica* it has been suggested by LOWNDES YATES that influenzal infection of the accessory sinuses precedes the infection of the central nervous system by the encephalitis virus and in this condition it has been pointed out that there is, in many cases, a definite correlation between the two diseases of influenza and encephalitis. It would appear, then, that if one regards the possibility of a catarrhal infection of the sinuses of the dog as predisposing to infection with virus of the encephalitis type, one would expect to find a close connection between the catarrhal symptoms of the upper respiratory tract and subsequent nervous manifestations. It has been our experience, during the last few months, that this is not the case and that the majority of dogs showing eventual nervous symptoms have not shown during the course of the disease symptoms referable to the upper respiratory tract.

It is to be hoped that we may very shortly be in a position to deal with the questions of immunity: if once a recognised definite degree of immunity can be obtained with regard to the experimental type of infection, it should follow that further research into immunity against natural infection will be ultimately successful.

There is one more point to which we would draw attention, and that is the question of continued investigation into the methods of treatment of distemper. There would appear to be no reason why progress in the etiology of the disease and improved therapeutic measures should not take place simultaneously. It is in the latter respect that clinicians can assist in the work, since they are dealing continually with the natural infection in varying degrees of virulence and it is more particularly in diseases such as distemper that the combined efforts of the research worker and the clinician are of paramount importance.

Royal College of Veterinary Surgeons.

SPECIAL MEETING OF COUNCIL.

Immediately following the Quarterly Meeting of the Council of the R.C.V.S., the proceedings of which were reported in last week's issue of the *Record*, a Special Meeting of Council was held. The President (Lieut-Colonel J. W. BRITTLEBANK, C.M.G.) occupied the Chair, and the same members were present as at the Quarterly Meeting.

The minutes of the last Special Meeting, held on Wednesday 21st April, 1926, which had been printed and circulated, were, on the motion of Mr. SUMNER, seconded by Professor GOFTON, taken as read and confirmed.

MOTION BY SIR JOHN M'FADYEAN.

Sir JOHN M'FADYEAN moved:

"That Byelaws 60 and 61 be altered to read as follows:—

60. (*a*) Every candidate who desires to present himself for the first time for the A or First Professional Examination must, not less than three months before the commencement of the examination, submit to the Council of the Royal College of Veterinary Surgeons a certificate or certificates to the effect that he has passed a recognised examination in general education, together with a copy of his birth certificate.

(*b*) He must also, not less than seven days before the commencement of the examination, submit to the Secretary of the Royal College of Veterinary Surgeons or other person appointed by the Council for that purpose, a certificate to the effect that subsequently to having passed the examination in general education he has been a student for one session at one of the affiliated Veterinary Schools, and has therein satisfactorily attended during that period the following courses of instruction:

a. Anatomy. A course of not less than 50 lectures, and 20 hours' practical instruction on the osteology and arthrology of the domesticated animals.

b. Chemistry and Elementary Physics. A course of not less than 80 lectures.

c. Practical Chemistry. A course of practical instruction extending to not less than 30 hours.

d. Biology. A course of not less than 60 lectures and 20 hours' practical instruction.

61. Every candidate who desires to present himself for the first time for the B or Second Professional Examination must, not less than seven days before the commencement of the Examination, submit to the Secretary of the Royal College of Veterinary Surgeons or other person appointed for that purpose by the Council, a certificate to the following effect:

Of having, subsequently to having passed the First Professional Examination, been a student for one session at one of the affiliated Veterinary Schools, and of having therein satisfactorily attended during that period the following courses of instruction:

a. Physiology. A course of not less than 80 lectures on the physiology of the domesticated animals.

b. Histology. A course extending to not less than 40 hours' practical instruction regarding the histology of the domesticated animals.

c. Anatomy. A course of not less than 80 lectures on the anatomy of the domesticated animals.

d. Practical Anatomy. A course extending over not less than five months, during which the student must have dissected the whole of the body of the horse at least once to the satisfaction of his teacher, and attended not fewer than 20 demonstrations on the anatomy of the other domesticated animals.

e. Stable Management. Manipulation of the domesticated animals and principles of Shoeing healthy animals. A practical course extending to not less than 20 hours' instruction."

In doing so, Sir John M'Fadyean said: Although this is rather a long motion, its effect can be stated very shortly. It is that the Regulations of this Council with regard to teaching and examining in anatomy shall revert to what they were about three years ago, I think, when a change in the Regulations was made. At the present time the Regulations prescribe that the teaching of anatomy shall be spread over two complete sessions and that the examination shall be taken at the end of the second session, that is for students who present themselves for anatomy for the first time. Formerly, for the purposes of examination and teaching, anatomy was divided into two parts. The first part included osteology and arthrology, and it was prescribed that these subjects were to be studied during the student's first session, and he was to be examined on that part of anatomy at the end of the first session. At the end of the second session he had to present himself for another examination in anatomy, in which the whole of the anatomy of the domesticated animals was covered, with the exception of the particular parts of the subject embraced in the examination at the end of the first year.

Now I think it is rather a remarkable fact that these older Regulations, which were altered quite recently, had actually been in operation for over 30 years; and, so far as I am aware, no member of the Royal College of Veterinary Surgeons, either in this Council or outside it, ever suggested that this practice of dividing anatomy into two parts for the purposes of teaching and examining in any way thwarted the efforts of teachers to instruct their students; and, so far as I can recollect, no Examiner who examined for this body during that time ever suggested that the results of the Examinatins, or the failures of the students, showed that they were, with respect to instruction in anatomy, under a handicap because the subject was taught in two parts in consecutive sessions and there were two different Examinations. My own personal opinion is (and of couse I am anxious that the members of of the Council should adopt it) that that older system that was in operation for 30 years was best. It follows what was, and I think still is, the common method by which anatomy was taught. I have a little knowledge about this, because I was myself a teacher of anatomy for, I think, about a dozen years, and I confess that I took as my model for the method of instructing students in anatomy the system that was followed in the medical classes in the University of Edinburgh under the most illustrious teacher of anatomy that this country has produced, the late Sir William Turner. In the medical classes, as in our own for many years after that, students began their study by receiving instruction in systematic anatomy, and when anatomy is taught in that way, naturally one begins with the skeleton and afterwards proceeds to the joints. I am unable to understand exactly what can be the advantage of proceeding in any other way. I understand, however, that Professor Whitehouse is of opinion, and has found as a result of his own experience, that that system should now be abandoned. I believe it is not abandoned to any extent in the teaching of anatomy in the United Kingdom at any rate. So far I have only referred to the effect of the Regulations on teaching, but of course there is the question of the effect on examination. At the time when the Council altered the Regulations, somebody must have convinced them that it was detrimental to them to have two separate examinations for anatomy. I have not had time to look up the debate that occurred at that time, and I am not quite sure as to what were the reasons urged upon the Council, but I think it was suggested that it was desirable to cause the students to carry all that they had been taught about anatomy up to the end of the second year. It was something to that effect, that the system under which you teach a part of the subject and then examine a student in it is one that conduces to cramming. My strong opinion is that if there is any difference between the two systems in that respect it is not the old one but the new one that is open to objection. I know when the alteration was made some of us had misgivings, which have since been confirmed, that, if there was not an examination at the end of the first year, students would neglect the study of anatomy to a large extent until the beginning of the second year, and that they would therefore have to cram into this second year all the information necessary to carry them through the examination at the end of

it. I maintain that the old system is a better system and conduces less to cramming, and that we ought to revert to it, in part because of this very reason. There is a subsidiary reason, which possibly affects London only, and that arises from the fact that a proportion of the students at London are studying now for two different qualifications, namely, the Diploma of this Royal College of Veterinary Surgeons, and the Degree of Bachelor of Science of the University of London. It so happens that the new arrangement will seriously handicap students who are studying for the University Degree, because during the second year if they neglect, to the extent that I am afraid they will, the subject of anatomy during the first year, they will actually have to study the whole of the anatomy, physiology and stable management, and to pass the University examination in biology and in organic chemistry. It was much better before, when they disposed of part of the subject of anatomy during their first year. I hope the Council will take that fact into consideration, along with other reasons that I have assigned, when they come to vote. I want to say that I am in full accord and sympathy with the resolution which Professor Whitehouse has in mind to move, which would allow him, or other teachers, to make a choice between the two different systems, that is to say, that we should be allowed in London to revert to the old system, but that Professor Whitehouse would not present any of his students for examination in anatomy until they had attended two complete sessions. It so happens that neither Professor Whitehouse's resolution nor mine by itself will put matters exactly right, that is to say, there will have to be consequential alterations, but I think mine has has the advantage, at any rate, that it will remove what at the present time is a difficulty in connection with Bye-law 62, which at the present moment does not allow students or graduates who are entitled to exemption there to obtain exemption from the first year of study, whereas if my resolution is passed then they will obtain that exemption. I have said that I am in perfect agreement with Professor Whitehouse's intention, and I undertake, if the Council passes the resolution which I now move, immediately to give notice, not exactly of Professor Whitehouse's resolution, but of the one which has been suggested by our Secretary in a memorandum in which he says that assuming it is desired by the Council that we should revert to the old system, while allowing the principals of different Schools to present their students in one way or another, the best way would be to pass the motion that is now proposed and to pass a Bye-law to the following effect. I have altered it a little: "It shall, however, be at the option of the principal of any of the affiliated Colleges to present the students of his College for examination in the whole subject of anatomy at the Class B Examination only. In such cases notice must be given to the Secretary of the Royal College of Veterinary Surgeons at least three months before the Examination and the notice shall apply to all the students of that College. Every student thus presented must, not less than seven days before the commencement of the Examination, submit to the Secretary of the Royal College of Veterinary Surgeons, or other person appointed for that purpose by the Council, certificates to the following effect, first of having satisfactorily attended during two complete sessions a course of not less than 130 lectures on the anatomy of the domesticated animals, and so on repeating the present Bye-law 61 subsection (1).

The rest is merely a repetition, involving no alteration of what he must produce—evidence that he has studied physiology and histology; in fact, the only important part of what I have just read is that it would allow the principal of a school the option of presenting his students in the one way or the other. I beg to move the motion as it stands in my name.

Professor SHARE-JONES: I rise to second the resolution which has been proposed in such clear terms by Sir John M'Fadyean.

Mr. MALE: Would it be possible to take all these resolutions together? They all affect the same Bye-laws.

The PRESIDENT: No, I do not think so.

Sir JOHN M'FADYEAN: The Secretary has looked very carefully into the matter, and finds that a combination of them would not be effective, or rather it would not be the simplest method of being effective for the purpose in view.

The PRESIDENT: I have discussed this matter at very considerable length with the Secretary, and I do not see any means of taking these resolutions together.

Professor WHITEHOUSE: I suppose it would not be possible to take mine first, would it? Sir John M'Fadyean's resolution has precedence as it is first on the Agenda.

The PRESIDENT: You are now speaking on Sir John M'Fadyean's motion, not on yours?

Professor WHITEHOUSE: I am referring to what Sir John said about my motion, if I may. It was due to my ignorance of the fact that a proposed Bye-law could not be amended during debate; otherwise I would have put it in a very much clearer way so that we could have had something tangible to debate. If it were possible to take, not an official vote, but the sense of the meeting, on the proposed amendment that Sir John said he would propose, that is, allowing an option, I would then feel myself on very much safer ground in accepting Sir John's amendment to the Bye-law that he has just proposed. If that amendment is carried he certainly gets all he wants; he gets a reversion to the old system, and I stand a chance of not getting what I need,—the option of being able to present my students at one examination instead of at two. At present there is no option. The present situation suits me extremely well, but my desire is to support Sir John, and I am trying to find some means by which we can both be satisfied with our own methods. Sir John said that

it is an unusual way to teach anatomy in the way he described; but I would like to point out to him that his own book: "The Dissection Guide to the Horse" is so arranged as to take osteology as well as arthrology in the appropriate way that I have been taking it. His own extremely valuable textbook on the subject is arranged in that way. There is one point that I think ought to be considered by everybody, and that is that the first lot of students under the altered Bye-law have not yet been presented. We cannot tell how we are going to show. We feel that we are going to succeed very well indeed with them, and it seems a little premature, a new Bye-law having been adopted, to change it again before the results are known. Would it be possible, Sir, to take an unofficial vote?

The PRESIDENT: I am afraid we cannot take any unofficial vote, Dr. Whitehouse.

Professor WHITEHOUSE: Cannot we take the unofficial sense of the meeting in any way?

The PRESIDENT: I do not think so. I must rigidly rule that we observe the ordinary rules of debate and stick to the business which is before us.

Professor WHITEHOUSE: Then I move the rejection of Sir John M'Fadyean's amendment.

Dr. BRADLEY: I am going to support Dr. Whitehouse, and I do so for several reasons, for one at least that he has already given. It is an extraordinary thing, it seems to me, that, without subjecting the method to the trial of examination, we have come to the conclusion that the rearranged scheme of examinations is a failure. That strikes me as being rather extraordinary. I was also extremely interested to find Sir John M'Fadyean quoting the methods of Sir William Turner in support of his motion. No one on the face of this earth reveres the memory of William Turner more than I do, and I think his methods have been a type of more anatomists than the methods of anyone else; and yet Sir William Turner never suggested that anatomy should be examined at two examinations. The old argument against unity in the anatomy examination has been once more advanced, much to my surprise, namely, that if a student is not examined in anatomy at the end of the first session he neglects his work. I can produce figures to show that, at one school at least, there has been no neglect of work during last session, or during the past term of the present session on the part of the junior students of anatomy. I have had some figures prepared, anticipating that this might be one of the planks of the platform. The average attendance of all the students who attended the whole session last year in Edinburgh was 95 per cent. That is the average attendance; we have excluded entirely any students who attended only for part of the session. In the same way we have struck an average of their class results. I may say that there were 19 students in all who went through the whole course over the whole session, and those 19 students, in their class examinations, obtained an average percentage of 59. I think, Sir, that that very clearly shows no neglect, either in the shape of attendance or in work.

Professor WHITEHOUSE: That is in the subject of anatomy?

Dr. BRADLEY: Yes; everything else is excluded. It is perhaps unfair to take a single term of the present session and quote that, but I am tempted to do so for the reason that, if there was any chance of the students in Class A neglecting their work, that chance would be stronger the farther we were from the old system, because tradition would grow. It is obvious to me at least that the neglect, if it is going to occur, would be greater this year than last year, for the simple reason that the germ at least of a tradition would have come into existence. As it happens, both the attendances and the class results have been better for the present term. The attendance is 96 per cent.—again, strange to relate, for 19 students,—and the percentage is 68 for the same 19 students.

Professor WHITEHOUSE: I am sure that I could produce figures that would support Dr. Bradley.

The PRESIDENT: Will you please not interpolate remarks now, Dr. Whitehouse.

Dr. BRADLEY: I feel very strongly on this subject, Sir, as you know, and as I think all the Council know, because it is my opinion—and apparently it is not an isolated opinion—that anatomy is one subject and not two; and I therefore do object, on more grounds than one, that anatomy, the only subject that one has ever endeavoured to dissect perhaps before in the whole curriculum, should be made into two subjects. I am saying that with deliberation; and I am not neglecting the possibility of its being denied. I do, however, maintain that in the past there has been a distinct division of the subject. I would ask members of Council to think of any other subject in the curriculum that they would wish to have divided into two. I might ask them to think, for example, of an examination in surgery at the end of the third year on the surgery of bones and joints only, and then an examination at the end of the fourth year on the rest of the subject of surgery. It has been contended that the view that I am taking is quite wrong, for the reason that in the second examination the examiners have a perfect right to examine on bones and joints. That is perfectly true, but we all know that the examination on that part under the old system in the second year was either perfunctory or absent entirely. But supposing it is not perfunctory, supposing there is a thorough examination, is the subject of osteology and arthrology of such importance that it should be examined upon twice, once at the end of the first year and once at the end of the second year? I think not. Bones and joints in themselves, apart from muscles and the other soft structures, are merely portions of the machine, and a knowledge of bones and joints is of no more value, I think, to a surgeon than the knowledge that a brick has so many surfaces, so many angles and so many borders, would have to a builder. The bones and joints must

be taken in conjunction with the other organs of the body, especially in conjunction with the muscles. I also do not feel in the least happy at the way that Sir John M'Fadyean concluded his speech, by saying that if his resolution was passed he proposed to incorporate in a further motion the suggestions of Dr. Whitehouse. I think, as a matter of fact, that each of these should stand entirely upon its own basis and should be voted upon upon its merits, because it is possible that the mere mention of a possibility of a further motion contingent upon the passing of this motion might have an effect upon the vote.

Sir JOHN M'FADYEAN: May I say that there is no possibility of my giving the notice that I read out, because it was conditional upon my receiving Professor Whitehouse's support; so that the ground is quite clear.

Dr. BRADLEY: I was not clear upon that; that certainly disposes of the objection. I think I have already occupied the time of the Council probably longer than is desirable, but I do feel that this is an important matter, and I say again that it is a pity we could not have allowed at least one examination to take place under the re-organised scheme. Apparently a few years ago we came to the conclusion that we should revise our action at a very early date. But, at any rate, whether we came to that conclusion or not, we are doing it, and I think we ought certainly to give the re-organised scheme a trial. ("Hear, hear")

Professor CRAIG: I desire to support the motion which stands in the name of Sir John M'Fadyean. I have always been an opponent of the change in the methods of instruction given in anatomy and the change in examination, for reasons which have been largely put forward very clearly by Sir John M'Fadyean. Although it apparently is the case that the subject is divided into two parts as the results of two examinations, that is really not the case. By the requirements of the old curriculum, students apply themselves much more closely over a longer period to the work than they will do at the present time. It has been stated that we have had no experience of the change. We have had no experience of the examination in Class B as a result of this change, but we have had some experience as to what will occur in regard to instruction and the effects of the Regulations in Class A anatomy. We have been given some figures from one of the Colleges. I do not intend to give you any figures, but I just want to point out one or two defects that arise in connection with such figures. These figures are supposed to show that there has been no neglect of study. I do not suppose that any of us here believe that the application of a student to study is confined to attendance at College and at classes. If one had any information as to what he does in addition to that, then we would have evidence before us that would give us some idea as to the effects of the change; but we have nothing in regard to that. My own experience is that towards the third term, the students in Class A naturally pay more attention to those subjects which are going to be examined in at the Class A Examination. It is a natural tendency. One may say: "Well, the authorities at the various Colleges can arrange that no students will be allowed to go forward to their Class A Examination unless they have shown application in connection with the study of anatomy". That is quite true, but one is comparing the new system with the old, and what one wants to make sure of is that the new system is operating as well as the old. I am quite sure that it is not at present, and that it is not likely to do so in the future, One of the aims of education, I take it, is to avoid as much as possible that pernicious system of cramming. ("Hear, hear.") If any innovation ever tended to increase that pernicious system it is the new arrangement in connection with anatomy. ("Hear, hear") I go further and say that a student will not have as efficient a knowledge of the subject as he had under the old system. Dr. Bradley has indicated that the study of bones and joints is not of so very much importance, but I think those of us who have to do with the clinical aspect of the work in veterinary anatomy must realise the paramount importance of that part of the subject.

Dr. BRADLEY: Mr. President,—by themselves.

Professor CRAIG: Taken by themselves. I do not want to say anything further, because I think enough of the time of the Council has been occupied by me in support of the motion; but I may say that, from what I have seen of it, the motion does not have the effect that Sir John tried to make out that it would, for this reason, that the change in regard to examinations is not complete, and if it was going to have an effect upon the examinations it would require to have included a change in Bye-law 76, where, under Examination A, there should have been added as No. 3. anatomy. I do not know whether it is possible to have that added to the motion?

The PRESIDENT: No.

Sir JOHN M'FADYEAN: You mean to my motion?

Professor CRAIG: Yes. I suggest that, with the permission of the Council, that addition should be made in order to give effect to the motion which you have brought forward.

Sir JOHN M'FADYEAN: I think I explained that consequential alterations would be necessary.

Mr. MALE: May I ask what would be the effect of Sir John's motion on Bye-law 62 with regard to exemptions? I do not quite understand it; it has been altered so many times. Would it mean that an exempted student would have to spend a year doing junior anatomy?

Sir JOHN M'FADYEAN: He would be exempted from one year of study and from the whole of the syllabus of the first Examination, including anatomy.

The PRESIDENT: Is that so?

The SECRETARY: Yes.

Professor WHITEHOUSE: Your Bye-law would exclude him from the study of osteology?

Sir JOHN M'FADYEAN: He would be in the same position as a student who had been in attendance one year and passed.

Mr. GOFTON: In rising to support the view which has been taken by Dr. Bradley and by Professor Whitehouse, I want to remind the Council of the history of the present position. As long ago as the 11th April, 1924, during the period when I was Chairman of the Examination Committee, a special sub-committee of that Committee was appointed to consider the question of teaching and examining in anatomy. The subject came up repeatedly at meetings, and it was only in January, 1925, after at least four meetings of the Committee, that a decision was reached. Before that decision was reached, a vote was taken on the optional suggestion which had been referred to both by Sir John M'Fadyean and Professor Whitehouse, and it was lost. Ultimately a decision was reached by the Committee, which was confirmed by this Council in January 1925, to carry out the alteration of the Bye-laws to produce the position which exists at the present moment, and which as Mr. Male says, has never yet been put to a trial. I want also to emphasize one other fact. On at least one occasion, when a recommendation came up from the Examination Committee to create the position which at present exists, the matter was taken back by myself specifically for the purpose of allowing Sir John M'Fadyean to express his views on this subject. It was taken back because certain circumstances prevented Sir John M'Fadyean being present at a meeting at which the Examination Committee had reached this decision. Despite the views put forward and expressed by Sir John M'Fadyean at that time, the Council carried the recommendation of the Examination Committee and created the position which exists at the present moment. I want also to give you, because I am extremely surprised at the personality of those who are opposing this motion, the composition of the special sub-committee of the Examination Committee which considered this question. The personality of that Committee was as follows: Dr. Bradley, Professor Craig, Professor Gofton, Professor Share-Jones, Sir John M'Fadyean, and the late Sir Stewart Stockman. That is the history of what has happened leading up to the present position.

I now want to refer to two points which were made by Sir John M'Fadyean in moving his motion. In the first place, he detailed certain things with regard to the teaching of anatomy in the Colleges. I do not think that should influence this Council one single iota, because the Council has nothing to do with the arrangements made by the Colleges for teaching individual subjects. It has been clearly and very definitely laid down that the management of the Colleges is not in our hands; it is no concern of ours. We are only concerned to know that, at the end of the time, the students are fit to sit for, and pass, an Examination which we conduct. The second argument which Sir John M'Fadyean put forward, as I understood it, was that the real stimulus to study on the part of a student is the Examination which is held by this body at the termination of his year of study, or his two years of study, as the case may be. It seems to me that if no other stimulus was capable of being applied within the College which will ensure that a student spreads his work out over the whole period of the session, and not over any limited part of it, there is something lamentably wrong in such a College. In fact, I go so far as to say that, when I was a teacher, I had no difficulty in ensuring that the work proceeded step by step, and that the students were maintained at a reasonably steady standard of work. The same argument might be applied in relation to one session as Sir John has applied in relation to two. If it is true that because an examination is only held at the end of the second year, therefore the student will do no work, or only a limited amount of work, in relation to that subject in the first year, it must be equally true in each individual year itself, because the examination is held at the end of the third term, and the same argument one would say reasonably applied that the student would do a limited amount of work in the first and second sessions and cram in the third. In my view that argument ought not to carry very much weight with this Council.

The PRESIDENT: Does anyone else wish to speak on this motion?

Professor SHARE-JONES: I should like to say one word, Sir, namely, that I seconded Sir John's motion on this matter from a sense of deep conviction ———

Dr. BRADLEY: I rise to a point of order.

Professor SHARE-JONES: According to the Standing Orders, a member may second a motion and defer any remarks he wishes to make until later in the debate.

The PRESIDENT: I am afraid that you forgot the formality of reserving your remarks.

Professor SHARE-JONES: The member need not say so, Sir. But I do not mind. I take it we are here in the interests of education. If Dr. Bradley objects—

The PRESIDENT: I am going to allow Professor Share-Jones to continue, because I concluded that, as he seconded the motion, he did desire to speak.

Professor SHARE-JONES: I am afraid there is a danger that education might suffer from the question being side-tracked, and I particularly refer to the last speech which has been made. Even though this body might not regard itself as definitely concerned with methods of instruction inside the Colleges, it most certainly is concerned as much as the Colleges with the knowledge of the subject that the candidate acquires, and should certainly be concerned with the method by which that knowledge is obtained. There is one thing which must not be forgotten in a debate of this kind. Human nature must not be forgotten. I speak from experience now of the last session,—an experience of a very good set of students. My experience, based upon the results of examinations that we have conducted inside, is diametrically opposed to that expressed by Dr. Bradley. They are certainly not so well up in the first year's study of anatomy as they would have been under the old system. I am afraid that we are

too apt to base our system entirely upon what goes on in human anatomy. I venture to say, and I would say it in the presence of medical men just as I say it in the presence of veterinary surgeons, that veterinary anatomy is a much greater subject than human anatomy. It requires every stimulus that we can give the student to carry him on with this huge course, so that we may hand him on with a sound knowledge of anatomy. I am astonished at the attitude taken by Dr. Whitehouse, because if there is one man who has come to this country from others, and who has complimented us on more than one occasion on the quantity of anatomy that is carried forward owing to our system from Class B to Class D, that gentleman is Professor Whitehouse, as I am sure you will confirm. That undoubtedly is the biggest tribute that can be paid to the system that we have adopted. That system, which has been in existence for so many years, has not failed us. I have never heard any criticism of it from outside. Other people are anxious and eager to criticise us, but so far as the system we have adopted in anatomy is concerned, I have never heard one word other than of praise for the methods we have adopted. With regard to the Committee, it would be interesting if the names of those were read out who happened to be present when the final vote was taken and the thing was pushed though, but I do suggest that no adequate reason was ever given for the change. There is, however, a very satisfactory reason for our asking this Council to retrace its steps before it is too late, before we alter a system which was working well. It is no use going back three or four years when we have put into the profession men with a far less adequate knowledge of the subject than we were able to give them under the system which has obtained up to the present. I support Sir John on educational grounds—there is no other ground on which to support this except the educational ground—and in the interests of an efficient knowledge of anatomy. Anyone who studies the question of sound study and cramming knows very well that to postpone the examination until the end of a two-years' course of study encourages cramming. Any experienced teacher would agree with that. What is done in the Colleges to attempt to prevent it? I know one College where they institute an examination every month. Every month a little test is imposed, so that the work is split up into monthly parts. If we, as an institution, postpone the examination, which is all-important to the student until the end of the second year, what does it mean? This is what it has meant in our place. It has meant that excellent students, keen on study, have worked exceptionally well until about the middle of the third term, and their immediate trouble is the professional examination, and from that time onwards their effects have been relaxed. The result at the end of the term was certainly that those students were not within a considerable measure of the efficiency they would have possessed had the old system been in existence. I support the resolution most strongly.

Professor WOOLDRIDGE: This is a subject that undoubtedly has given us all very serious cause for thought. I personally have never taught anatomy, but I have considerable experience as a teacher of other subjects. One very important conviction I hold is that to get the best results of study, one ought to examine at the end of each year of study and allow the results of that examination to stand. That being the case, I am not convinced that it is in the best interests of the student in after days that he should study one subject and be examined in the whole of that subject at the end of two years. To my mind it is a far better principle that he should be examined at the end of the first year of study, and again at the end of the second year of study if in the second period he is capable of being examined on such portion of the first period of study that he was examined in previously, a position which I understand applied in the case of anatomy under the old arrangement. I am not satisfied in my mind that the new method is altogether wrong and that it has no merits, and I felt a very keen sense of disappointment when Professor Whitehouse refused to accept what I may call the olive branch, and to allow the system to be optional. That, in my opinion, is the best solution of the problem.

The PRESIDENT: I do not think Professor Whitehouse had any option. I do not think that point arises.

Professor WOOLDRIDGE: I understood, Sir, that one of the statements that was made by Sir John M'Fadyean was that, in the event of his proposition being carried, he would—

The PRESIDENT: You cannot very well make bargains on a proposition of this sort.

Professor WOOLDRIDGE: He might not be making a bargain, but he was intimating what steps might follow.

The PRESIDENT: That is conjectural.

Professor WOOLDRIDGE: May I say, Sir, that in my view the optional method would be the better, and I certainly would have felt very much easier in my own mind, and I think other members would have felt much more easy, if that method had been adopted.

Professor WHITEHOUSE: Then you have only got to vote in the way I do now and will do later.

The PRESIDENT: Is this an explanation, because I cannot let you make another speech?

Professor WHITEHOUSE: All I say is that he has only got to vote for my motion to obtain his wishes.

The PRESIDENT: If nobody else wishes to speak, Sir John M'Fadyean has the right to reply, if he wishes to take advantage of it.

Sir JOHN M'FADYEAN: I do, Sir, wish to take advantage of the right to make a reply, which will be short and will deal only with new matter. I will begin by saying that I think the feebleness of the opposition was proved by the weakness of the reasons advanced for opposing my resolution by such an able advocate as Dr. Bradley. I call the attention of the Council to the fact that he has not said there was any evidence at any time that the results were bad under the old system. As to the evidence that he laid before the Council, that things were progress-

ing beautifully because students were taking 59 per cent. of marks when examined over a month's work. (Dr. BRADLEY: "Three months"),— I take it they were examined by their own teachers. Even then I think there must have been unusual bias. At any rate, I can only hope that they will all get 59 per cent. of marks when they present themselves before the proper examiners. But I should like to ask Professor Bradley if he would really like to stand by this test of the first examination under the new system. He knows he would not. He would abandon it supposing his students fared a little worse than they did in the last examination, or in the last six examinations. The fact is that we might have to wait ten years before there would be any striking difference. And this will apply with particular force to Professor Whitehouse. I am sure he would not like to stand or fall by the number of students that he may get through in the next examination, assuming that they were no better than they have been on some particular occasions. Professor Whitehouse has had magnificent results occasionally, but he has also had bad results.

The PRESIDENT: I did not quite hear what you said?

Sir JOHN M'FADYEAN: It is perfectly obvious that one could not be expected to judge of the merits or demerits of the new system by the result of one examination. The only other point I wish to make is this. I think the Council will be satisfied that there is at any rate a great deal to be said from the point of view that has been put before them by myself and by Professor Share-Jones and Professor Craig, and I hope the members of Council will hesitate before they penalise the teachers of anatomy in three of the five schools in Great Britain, especially after, as has been said, there is no reason why the teachers in Scotland should not have their own way. I think it would be a bad way, but at any rate I do not think it is reasonable that the Council should impose a method of examination that is not in agreement with the strong conviction of the teachers in England and Ireland.

The resolution was then put, and declared by the President lost, 8 voting for and 10 against.

MOTION BY PROFESSOR WHITEHOUSE,

Professor WHITEHOUSE moved:

"(*a*) That Byelaw 61 be amended by inserting after 'candidate' in line 1 the words '*except those exempted under Byelaw* 62.'"

(*b*) That Byelaw 62 be amended by adding the following words at the end of paragraph (3):—

"They must also submit a certificate to the following effect:—

"Of having been a student for one session at one of the affiliated Veterinary Colleges and of having therein satisfactorily attended during that period the following courses of instruction—

(1) Anatomy. (*a*) A course of not less than 130 lectures on the Anatomy of the domesticated animals.

(*b*) A course of practical Anatomy during which the student must have dissected the whole body of the horse at least once to the satisfaction of his teacher and attended not fewer than 40 hours' practical instruction on the Anatomy of the other domesticated animals.

(2) Physiology. A course of not less than 80 lectures on the physiology of the domesticated animals.

(3) Histology. A course extending to not less than 40 hours' practical instruction regarding the histology of the domesticated animals.

(4) Stable Management. Manipulation of the domesticated animals and principles of shoeing healthy animals. A practical course extending to not less than 20 hours' instruction.

(*c*) That the following words be added to Byelaw 61, to follow Clause (2) Section c:—

It shall, however, be at the option of the Principal of any of the affiliated Veterinary Colleges to present the students of his College for the subject of Anatomy at two examinations, that is to say, in part at the First Professional or A Examination and in part at the Second Professional or B Examination; and in that case the students at such College shall be examined in that part of the subject that deals with Osteology and Arthrology at the first examination and in the whole of the subject of Anatomy at the second examination.

Notice of intention to present Students for examination in the subject of Anatomy at two examinations must be given to the Secretary of the Royal College of Veterinary Surgeons at least three months before the examination and the notice shall apply to all the students of that College that have entered at the current session."

In doing so, he said: The effect of the resolution will be to allow Sir John to do what he has been so eloquently pleading for permission to do, and at the same time it will allow Dr. Bradley and myself to continue teaching anatomy in the way in which we wish to teach it.

The rest of the resolution is purely formal. It will allow a principal of a College to present all his students at two examinations instead of at one, but not to pick and choose students. If, after proper notice, he wishes to present them, he will present them all for the A or all for the B, but he also has the option of continuing as at present, that is, presenting them at one examination. I move the resolution.

The PRESIDENT:, Before you sit down, have you any objection to your motion being taken in three parts, part (*a*), part (*b*) and part (*c*)?

Professor WHITEHOUSE: Not at all. I will, to commence with, move part ((*a*).

The PRESIDENT: Does the Council agree to proceeding in that way?

(Agreed to.)

Professor WHITEHOUSE: In moving part (*a*) I should like to say the purpose of it is to allow a student exempted under Bye-law 62 to obtain the full advantage intended by that concession.

The PRESIDENT: The principle of this has been approved by the Council.

Professor WHITEHOUSE: This was put in at the request of a committee of the Council, and the principle was approved by the Council.

Mr. GOFTON: I second the motion.

The resolution was then put and carried unanimously.

Professor WHITEHOUSE: I now move paragraph (*b*). Dr. Bradley seconded the motion, which was carried unanimously.

Professor WHITEHOUSE: I now move paragraph (*c*). This is the controversial one. Its purpose is to allow the option of presenting students at two examinations instead of at one in the subject of anatomy. I move the resolution.

Sir JOHN M'FADYEAN: Sir, I am bound to second that resolution as I have expressed my opinion that it is desirable.

The PRESIDENT: Does anyone else desire to speak?

Professor CRAIG: I do not want to say very much. I do not like optional examinations. If we are going to have one method of education,, let it be a single method and do not let us have any variations in that method.

Dr. BRADLEY: May I say in just one word that I also should very deeply regret the introduction of any option into our examinations. We pride ourselves on our one portal. Uniformity, therefore, is absolutely essential. No option should be given.

Mr. GOFTON: May I say it seems to me that it is questionable whether it would be right for this Council under any circumstances to grant such an option to the principal of any College? I would draw your attention to the Charter of 1844, on page 25, in which the duty is imposed on this Council of "determining the times and places and manner of examining students". It seems to me that, if this option is granted to the principal of a school, we transfer to the principal of the school the means of determining "the manner of examining students," and in that way pass from ourselves a right which we ought to be very chary of passing.

Mr. MALE: I should like to support the motion of Dr. Whitehouse. Speakers on both sides have given very good reasons why they think that their method of teaching is the best. Personally, not being a teacher, I was unable to follow all the intricacies of the debate, but I do feel that if teachers think they can teach a subject better in a certain way they should be allowed to do so. I support the motion.

Mr. CLARKSON: Is it not a fact that we are not concerned with teaching; it is only the examining that we are concerned with?

The PRESIDENT: I take it that what Mr. Male meant to say was that he would accept the advice of the teachers as to when their students should come to the judgment trial of the examination.

Mr. MALE: Yes, that is what I meant to convey.

The PRESIDENT: If there are no other speakers, I will now put paragraph (*c*) of the resolution.

The resolution was then put and carried, 12 voting for, and 7 against.

MOTION BY MAJOR-GENERAL SIR JOHN MOORE.

Major-General Sir JOHN MOORE moved:

"That regulation No. 7 of the Jubilee Memorial Regulations be amended by inserting "on each paper" after the word "Marks" in line 7."

In doing so he said: The motion that I have put forward is moved with the object of making it clear that the 60 per cent. of marks, or 40 per cent. of marks, or whatever is allotted, applies to each subject instead of to one.

Mr. GOFTON seconded the motion, which was carried unanimously.

MOTION BY PROFESSOR BUXTON.

The SECRETARY: Professor Buxton is unfortunately unable to be present to-day, but he had given notice that he would move the following resolution:

"That Bye-law 62 be altered by the insertion after the word 'Botany' in line 10, the following words, 'and any matriculated student who produces evidence of having passed with honours an examination in Chemistry and Physics and also in Biology (Botany and Zoology) as part of his course for a degree in Arts, Science (exclusive of Veterinary Science) or Medicine.'"

The PRESIDENT: I formally move that on behalf of the Chairman of the Examination Committee.

Colonel DUNLOP YOUNG seconded the resolution, which was carried unanimously.

It was unanimously resolved that the Confirmatory Meeting should be held on Thursday, 20th January, 1927, at 3 p.m.

The PRESIDENT: I want to say, before we conclude the business, how much I appreciate the way in which you have assisted me to carry on the business of the Council to-day. I want also to say that to-day marks another step in the progress of the profession. I am very proud to-day to preside over this meeting, and to see you all wearing your Academic dress, thus complying with the request that I sent to you. I appreciate it very much, and I thank you. (Cheers.)

The meeting then terminated with a hearty vote of thanks to the President for his conduct in the Chair.

TUBERCULOUS MILK.

Dr. J. Howard Jones, M.R.C.V.S., O.B.E., County Veterinary Inspector for Glamorgan, writing in *The Medical Officer* for January 8th, on "Incidence of Tuberculosis of the Udder in Cows," says that in a certain county, very largely agricultural, in the course of the last ten months, thirteen cows were found to be suffering from tuberculosis of the udder. This was the result of the examination of only a fraction of the dairy cattle in the whole of that area. Each of those thirteen cows had recently been passing tuberculous milk, which had been disposed of commercially or used for domestic purposes for the manufacture of milk products.

It is Dr. Jones's opinion that, so far from this state of affairs being exceptional, this particular district is comparatively free from bovine tuberculosis.

"Judged purely from the public health aspect," he added, "it appears to be absolutely essential to have every milk-producing cow periodically examined by a qualified veterinary surgeon."

CLINICAL AND CASE REPORTS.

Tuberculous Milk: No Carcase Lesions Discoverable.

By J. M. Armfield, M.R.C.V.S., Chipstead, Surrey.

A Shorthorn cow, about six years old, was reported by the Authorities to have tubercle bacilli in her milk. She was in prime condition and no signs of tuberculosis could be found on clinical examination.

On *post-mortem* examination, after a careful search, no tuberculous lesions were discovered. The supramammary glands were a little large, but could not be pronounced diseased. The latter were sent to the pathologist for examination and after a few days the report came back—negative, and the owner received £25 (full value) + £1.

I think I am right in saying that a few years ago, when working as assistant to Mr. J. S. Lloyd, F.R.C.V.S., D.V.S.M., at Sheffield, he told me that in twenty years' experience he had never met with a case presenting the features of that I have described.

If T.B. was reported in the milk then he had always been able (although sometimes a very careful search was necessary) to find macroscopic lesions on *post-mortem* examination.

Of course, in my case a mistake may have been made and the wrong cow condemned.

A Peculiar Monster.

By C. W. Pembrey, M.R.C.V.S., Hayward's Heath.

A propos Mr. J. R. Baxter's report, in the *Record* of January 15th, of a peculiar freak born as twin to a normal calf, it may be of interest to your readers to know that I once experienced a very similar case.

The subject, a Shorthorn cow, gave birth to a normal live heifer calf, and, in addition, to a monster of about the size and shape of a small football. The monster was completely covered with hair, and showed a depression from which extended the umbilical cord. There were no appendages, and on incision no skeletal structure was found.

Three Cases of Heart Disease in Horses.*

By A. J. Kennedy, Edinburgh Veterinary College.

Case I. First Day.

Subject.—A five-year-old Clydesdale mare.

History.—She was showing colicky pains. There was a history of tetanus when a two-year old, and, several times lately, she had fallen and collapsed when at work.

Symptoms.—Dulness, anxious expression, pulse frequent and weak, conjunctiva injected. There was loss of appetite, and dull, persistent pain and uneasiness were present. Peristalsis had ceased; there was spasmodic diarrhœa and the passage of small quantities of fæces.

Diagnosis.—Commencing impaction of double colon.

Treatment.—Aloes ball and laxative food, with small doses of ammonium carbonate and nux vomica.

Second Day.

Symptoms.—Better appearance, pulse weak but regular, mucous membranes fairly normal.

The heart had been auscultated on the previous day, but owing to its rate it was difficult to say if there was any abnormal organic lesion. The beat was now stronger, and, with the fingers on the radial artery, direct auscultation was again tried. The fore leg was advanced to facilitate the examination. A definite murmur was not audible, but certainly the first heart sound was not clear cut, and differed from the normal in the way it seemed to run into the second. From the history of the case and the results of physical examination of the heart, it was concluded that there was an endocarditis, and chronic insufficiency of the mitral valve.

The owner was advised only to work him in chains and warned that, if the condition got worse, destruction would be necessary.

Case II. Chronic Heart Disease.

Subject.—A Clydesdale gelding.

History.—The horse had collapsed several times when carting, and had stopped in the middle of his work. When off work owing to a hard frost, the animal had several times swooned in the stable. He had been a good honest worker and, partly from sentiment, the owner was loath to part with him.

Symptoms.—Conjunctiva jaundiced; mouth pasty. Auscultation of the heart revealed a systolic murmur; the pulse was strong.

Diagnosis as to the state of the heart was delayed.

Treatment.—Soft laxative food was prescribed, with an aloes ball and nux vomica and ammonium carbonate as gastric stimulants. This treatment was intended to clear up the alimentary disturbance. Several days later the horse was normal in his alimentary system, but the heart showed clearly an abnormal sound during systole.

Diagnosis.—Insufficiency of the mitral valves. Curiously enough, as in the last case, the gelding had made a recovery from tetanus, and there is little doubt that the severe toxæmia of that disease was responsible for the lesions in both cases.

Treatment.—Careful, regular feeding in order to avoid stomach irregularities, which, however, might be secondary effects from the heart.

Case III. Chronic Heart Disease. First Day.

Subject.—A Clydesdale mare.

History.—This mare, a valuable one and a very honest worker, was found in her stall in an alarming condition. She had been used for heavy carting work, and the only unusual symptom was that when pulling she would sometimes stagger and tremble in a fore leg.

Symptoms.—There was a marked intermittent and irregular thumping in the region of the thorax which could be heard some yards away from the animal;

* Contributed for award under the N.V.M.A. Clinical Prize Scheme for Students.

dyspnœa ; mucous membranes anæmic ; temperature normal, pulse weak and irregular.

The alimentary system seemed fairly normal although very little fæces had been passed. So loud was the thumping and so irregular the pulse that it was impossible to auscultate the heart. The sound seemed as loud over the eighth to twelfth ribs as further forward.

Diagnosis.—Either spasm of the diaphragm, or a functional or organic disorder of the heart.

Treatment.—Mare removed to an airy loose box and given an injection of strychnine and an aloes ball. Intestinal stimulants in the form of nux vomica and ammonium carbonate were left to be administered thrice daily. It was hoped that this treatment would get rid of any intestinal irritation, which might be at the root of the trouble.

SECOND DAY.

Symptoms.—Patient distressed in appearance ; dyspnœa ; weak irregular pulse ; anæmic mucous membranes. The thumping sounds were still well marked, but were found to correspond with the pulse beats.

Treatment.—Injection of strychnine. Tempting mare to eat with bran mashes and light laxative food.

THIRD DAY.

Symptoms.—Patient dull and listless. Palpitation not so marked as on previous day. Pulse irregular, small and intermittent. Percussion of the heart showed cardiac dulness well behind the sixth rib. Auscultation revealed an irregular first heart sound, quite unlike the normal.

FOURTH DAY.

The mare was much brighter. The aloes had acted and there was a free passage of fæces. She was drinking large quantities of water, and eating hay and bran.

Treatment was continued as before except that ammonium carbonate and potassium chlorate were added to the drinking water as eliminatives.

FIFTH DAY.

The mare was almost normal, and the pulse, though weak, was fairly regular. The large area of cardiac dulness and the unusual murmuring first heart sound seemed to point to insufficiency of the mitral valves.

Treatment.—General after treatment consisted in attention to diet, as any local disturbance of stomach or bowels might aggravate the other condition. Easy chain work was advised and undue strain and excitement were to be avoided.

Comment on the three cases.—

Heart disease is difficult to diagnose from auscultation and percussion alone. Most horses I have examined show a well-marked *lubb—dup* on auscultation, but in some healthy hard working horses there is variation from the typical sounds. It is not always easy to map out the cardiac area by percussion in the healthy animal. But if one auscultates a well-marked abnormal sound, and there is a history of distress when at work, it is justifiable to diagnose an organic disease of the heart. Many horses suffer from an acute toxæmic fever during their lives, and this is probably the chief cause of both acute and chronic endocarditis. In extreme weakness of the heart in a disease, the heart sounds are somewhat modified, but in such conditions as sthenic fevers and disorders where the pulse is strong and not too frequent, anyone familiar with the sounds of the healthy heart should be able to detect an abnormality, and take it into account in his prognosis of the case.

ABSTRACTS

Control of the Rat Nuisance. DR. LUHRS (*Zts. f. Veterinarkunde*, Vol. 38, 10, October, 1926, pp. 289-293).

Dr. Luhrs' investigations showed that the squill was the most suitable preparation for rat extermination. His reasons for advocating it are that it is cheap and easily obtainable, eaten fairly well by rats and is comparatively harmless to human beings and domestic animals. He used it in fresh form, put through a mincing machine with white bread. Additional advantages claimed for it when fresh are that death takes place quickly and that it can be prepared at any time.

Two other preparations made by the Bacteriological Institute of the Chamber of Agriculture for East Prussia were found to be effective. These were a phosphorous paste and a barium-carbonate paste. The disadvantage of the former is that it is dangerous for domestic animals and human beings, reports having been received during recent years of the poisoning of horses and he-goats. The barium-carbonate paste was more effective when prepared without fat and with water instead. This also has the disadvantage of being toxic for domestic animals and human beings.

The destruction of rats must be repeated at intervals of three months and the co-operation of neighbouring householders is also necessary for complete success. All waste products, remains of food, etc., should be removed as a preliminary measure, and vessels of water should be placed in as many of the holes as possible. D.K.

Experimental Investigations on the Plurality of the Virus of Foot-and-Mouth Disease. By O. WALDMANN and K. TRAUTWEIN (*Berl. Tier. Wochens.*, Vol. 32, No. 35, August 27, 1926, p. 569).

The clinical picture presented by foot-and-mouth disease is fairly uniform. The question of type is important from the point of view of immunity. Many conflicting observations have been recorded in the past. In the author's experience, re-infection bore no relation to the severity of the initial infection or to the length of time between two or more attacks. The authors found three types of virus, differing in their powers of conferring immunity, each type giving immunity to its own infection only. No relationship as regards geographical distribution could be traced between the three types, type "A" occurring both in Pomerania and in Italy, type "B" in Schleswig-Holstein and Bavaria, whilst type "C" was also found in Italy. The use of a polyvalent serum is recommended in serum treatment. D.K.

REPORT.

Nigerian Veterinary Department in 1925.

"Although Mr. F. R. Brandt, Chief Veterinary Officer of Northern Nigeria, places the matter less forcefully than did Mr. J. W. Speer in the Legislative Council last year, his annual report for 1925 fully justifies the motion by the latter for the strengthening of this service in the stock-raising districts. The bald facts of the position are set forth in para. 30 of the report, as follows:—

'The cattle population of Northern Nigeria is in the proximity of three million head, and according to the statistics of ranching countries, the present annual increase, in the absence of desease, should be from 8 to 10 per cent., or from 240,000 to 300,000 animals, and this increase should continue to augment in proportion to the number of cattle in the country until the country becomes fully stocked. During the last two years there had been a decrease in the cattle population of 250,000 head, instead of an increase of 600,000, or, allowing for half this amount as being consumed in Nigeria, an actual increase of 300,000. These figures show that within the last two years there has been a loss of 550,000 to 600,000 by disease, rinderpest being responsible for at least 75 per cent. This, from a financial point of view, allowing three pounds as the value of a beast, represents a loss to the country of about £750,000 per annum.'

"A saving of £750,000 per annum is surely one which should justify a considerably increased expenditure on veterinary services, for although Mr. Brandt's staff could not render all existing stock immune, provision should at least be made to deal with the annual increase. One is tempted to ask whether, if the cattle industry were entirely in European hands, Goverment would have shown itself so complacent in face of the heavy loss of life, for the problem is obviously beyond the power of the Native Administrations.

"Mr. Brandt has done what he could with the limited staff at his disposal, but only Zaria and Bauchi had the continuous advice of veterinary officers during the year, and although the report forms from the other districts give a certain amount of information, there are huge gaps that prevent the annual report from being an accurate statment of the whole position. The principal work of the department during the year hs been to 'dig itself in' at Vom, where, although the laboratory equipment only arrived in May, and still needs steam, gas, freezing and electrical plant, the Pathologist has rapidly evolved a satisfactory anti-rinderpest serum, and produced 18,600 doses before December, besides accumulating the customary stock cultures of other diseases. A weakness of the Vom station is the limited size of the stock farm, for a large number of cattle susceptible to rinderpest, are needed, both for experiments and for the making of serum. Since there has been no serious outbreak of rinderpest for the past four years, the number of non-immune animals thoughout the country must be large, and it becomes all the more necessary, therefore, to prepare at once for a strenuous campaign. It is significant that from the two or three districts where veterinary officers have been fairly constantly stationed the situation has already been noted as growing 'somewhat serious.'

"Diseases other than rinderpest, and animals other than cattle, have hardly been touched, owing to lack of staff, but fortunately, neither pleuro-pneumonia not trypanosomiasis has been prevalent. With regard to imported stock, the Emir of Katsina's stallion died, with all its progeny, and his imported bull and its calves had not proved very successful.

"The hide and skin exports were: hides, 7¼ million lbs., value £294,176; skins, 3¼ million pounds, value £365, 450; an increase of the former and a decrease of the latter compared with 1924, but here again lack of staff, and consequent lack of accurate reports, makes it impossible to indicate the definite cause of the fluctuations.

"The census of livestock for the year was as follows, but must not be regarded as being anything like as accurate as the absence of round numbers would seem to imply: 2,864,186 cattle, or, according to another account, 2,745,691; 3,967,773 goats, 1,478,600 sheep, 485,201 donkeys, 173,022 horses, 59,229 swine, 2,770 camels and 175 ostriches. This represents a small increase of cattle during the year, but nothing like the estimated normal figure, while the slight fluctuations in the other figures can hardly in present circumstances be considered significant."—*West Africa.*

U.S. Army Doctors take to Saddle.

For the first time, the United States Army has a mounted medical unit. This is the "Medical Squadron, Cavalry Division," which has been authorised as part of the 1st Cavalry Division, Fort Bliss, Texas.

Medical personnel formerly accompanied cavalry in wheel transportation and as a result usually was unable to maintain the same rate of march or traverse rough terrain. Consequently, cavalry casualties often either did not receive proper professional attention or were dependent on local humanitarian interest.

The new unit comprises a squadron headquarters of two officers and seven enlisted men, all mounted; a collecting troop of two officers and fifty enlisted men, of whom forty-three are mounted; an ambulance troop of two officers and fifty enlisted men, seven mounted and the remainder chauffeurs, wagoners, motor-cyclists, and mechanics. There is also a hospital troop with five officers and fifty enlisted men. In this troop twenty-eight are mounted, the others being chauffeurs, wagoners, and hospital personnel. A veterinary troop of two officers and fifty enlisted men—forty-two on horses and ten with the animal-drawn and motor transportation—completes the squadron.

The squadron totals thirteen officers and two hundred and seven enlisted men. Of these, ten officers and one hundred and nineteen enlisted men are mounted and able to accompany the cavalry when wheel transportation must be left behind.—*U.S. War Department Notes*, October, 30th, 1926.

DIVISIONAL REPORT.

Central Division.

At the commencement of this issue of the *Record* is reproduced the paper on "So-called Nervous Distemper," by Mr. L. P. Pugh, together with as full a report as space will allow of the prolonged and very interesting discussion upon it which occupied the greater part of a meeting of the Central Division held at 10, Red Lion Square, on the evening of Thursday, January 13th, It is a testimony to the supremacy of the distemper problem among the questions with which the veterinarian is principally concerned at the present time, that this meeting marked one of the occasions—rare even in the history of this important Division—when the attendance exceeded sixty, and it is evident that the presentation of Mr. Pugh's paper was regarded as a splendid opportunity for the interchange of views and experiences by those approaching the problem from the respective angles of the clinician and the research worker.

The President, Major G. W. Dunkin, occupied the chair, and there were also present Capts. A. H. Andrew, L. S. Balls, J. Bell, Messrs. W. Brown, G. Bushman, H. E. Bywater, E. L. Clarke, R. L. Cornell, Capts. A. Cornish-Bowden, T. Dalling, F. J. Eardley, Messrs. R. J. Foreman, R. E. Glover, Henry Gray, Major F. T. G. Hobday, Messrs. H. D. Jones, H. C. P. King, Herbert King, N. S. King, W. S. King, Major H. Kirk, Mr. G. H. Livesey, Capt. C. Macara-Finnie, Mr. J. H. Mason, Capt. G. D. Martin, Mr. J. W. McIntosh, Capt. F. C. Minett, Major-Gen. Sir J. Moore, Col. W. A. Pallin, Messrs. W. W. Perryman, H. G. Parkin, J. Pickup, Lt.-Col. J. W. Rainey, Mr. D. T. Reid, Major P. W. Dayer Smith, Prof. A. R. Smythe, Messrs. A. Spicer, F. H. Stainton, J. Stephens, Capt. R. J. Stow, Messrs. E. L. Stroud, C. N. Thompson, Capt. W. K. Townson, Messrs. F. W. Willett, J. Willett, J. D. Williams, Professor G. H. Wooldridge, Lt.-Col. T. D. Young and Mr. J. F. Macdonald (Hon. Secretary). *Visitors.*—Mr. J. M. Armfield, Capt. D. Reid Chalmers, Messrs. W. Downing, W. T. Ferguson, W. S. Gordon, C. Elphicke, R. L. Higgins, H. J. Hodgman, W. O. Moss and Drs. Harry Wadd and Gordon Ward.

The President opened the proceedings by wishing the members a very happy and prosperous New Year.

The *Minutes* of the previous meeting of the Division, which had been published in the *Record*, were taken as read and were signed as correct

Correspondence.

(1) From Mr. H. Bell, Professor J. McCunn, Major C. Davenport and Lt.-Col. P. J. Simpson, apologising for non-attendance.

(2) From the Secretary of the N.V.M.A. and Alderman W. Phené Neal respectively, regarding the suggestions contained in the report presented to the Division by Sir John Moore as delegate to the Royal Sanitary Institute Congress, as follows:

National Veterinary Medical Association of Great Britain and Ireland.

10, Gray's Inn Square,
London, W.C.1.
11th January, 1927.

Capt. J. F. Macdonald, M.R.C.V.S.,
Hon. Secretary,
Central Division, N.V.M.A.,
183, Upper Richmond Road,
Putney, S.W.15.

Dear Sir,

I have to inform you that, in accordance with the suggestion contained in your letter of the 21st December, it has been decided to circulate to the other Divisions of the Association a copy of Sir John Moore's Report on the Jubilee Congress of the Royal Sanitary Insitute as the Delegate from your Division.

At the same time representations are being made to the Royal Sanitary Institute that the Section of their Congress which now goes by the name of the "Conference of Veterinary Inspectors" should in future be called the "Conference of Veterinary Preventive Medicine," and it is hoped that this recommendation will be acceded to and that effect will be given to it in connection with the forthcoming Hastings Congress.

Yours faithfully,
F. Knight,
General Secretary.

Cherry Hinton Hall,
Cambridge,
12th January, 1927.

Dear Sir,

I received your letter and enclosures this morning. The latter I have carefully perused and, in so far as a layman may express any view at all, may I say that I entirely agree with the views that Sir John Moore, K.C.M.G., C.B., F.R.C.V.S., has expressed.

I think it is high time that the recognition of the Veterinary Surgeons should be fully acknowledged by the Minister of Agriculture and Fisheries, and it is partly with that object that I have been for some years past encouraged to take some little part in the work which has been going on, and it seems to me that although we have not succeeded entirely as we had hoped, yet we are in a stronger position than when I paid a visit to Folkestone and Newcastle.

To further this object I have arranged with the Council of the R.S.I., for another meeting in March and I need hardly say I shall feel gratified if I receive your support.

Believe me,
Yours very truly,
William P. Neal.

J. F. Macdonald, Esq.,
Hon. Secretary,
Central Veterinary Society,
183, Upper Richmond Road,
S.W.15.

(3) From Major S. L. Slocock, requesting that his name should be taken off the list of recipients of the notices of the Division's meetings as he was now commencing a stay of five years in Egypt.

The Secretary announced that intimation of their willingness to continue membership had been received

from Professor Langford and Colonel Wood, whose names had been included in the list of those intending to resign from the Division presented at a previous meeting. Mr. Macdonald also informed the meeting that he had written, as requested, to the Secretary of the British Hay Traders' Association asking for further particulars of the suggested propaganda campaign on behalf of the horse, but no reply had as yet been forthcoming.

NOMINATIONS.—The following gentlemen were nominated for membership of the Division: Messrs. A. J. Galloway, B.Sc. (Hampstead), W. S. Gordon (Beckenham), A. Fowler (Haslemere) and E. K. Gatfield (Regent's Park).

ELECTIONS.—The election was made of the following new members: Messrs. H. E. Bywater (Rayleigh), A. McEwen (Royal Veterinary College) and Horace Bell (Maidenhead).

MORBID SPECIMENS AND CASES OF INTEREST.

Colonel PALLIN: I have a couple of pathological specimens which I have received from Major J. O. Andrews, who is the Officer in Charge of the Equitation School at Weedon. I did not myself see the animals concerned, but I had seen the records of their histories and I asked him to let me have them, with any pathological specimens in connection with them, for presentation here to-night. I will give you an extract from the report of each case.

The first case concerns a bay gelding, aged six, which it was stated on the 23rd of July, 1926, had been intermittedly lame since his arrival in the previous April, when there was some bony enlargement of the near knee. The knee had become larger and there was partial anchylosis of the joint. The prognosis was stated to be unfavourable and a reducive was applied, the animal being racked up and rested. On the 5th of September the animal appeared to be going sound, though the swelling persisted, and after a slight setback on the 11th—due to a knock—he remained free from lameness to the 12th October, when the bony enlargement was bigger than ever and the anchylosis more pronounced. It was considered that further treatment would be useless, as the horse went lame immediately when put to work. The animal was destroyed on November 18th, and the *post-mortem* examination revealed the following: Partial fusion of the bones of the knee; an old fracture across the outer tuberosity at the distal end of the radius, affecting the joint surface; corrosion of the joint surfaces at several places, and the formation of inflammatory new bone on the outer surfaces of practically all the bones of the joint.

The second case was a bay gelding, aged 17. It was reported, on the 9th June, when this case first came under notice, he had several times passed blood for a few hours. He had on this day a slight temperature and there was a clear yellow discharge from the off nostril. Treatment by the administration of febrifuges, a purgative and diuretics was applied. Two days later the discharge had decreased and the urine had cleared, but on the 26th he was passing large quantities of blood again. The animal was in poor condition and slight pain was evinced on manipulation of the lumbar muscles. The condition was treated with a solution of Na hyposulph. in the foot and with diuretics in the drinking water. Samples of urine were sent to the R.A.V. School and the examination disclosed the presence of large numbers of red and white corpuscles and of various organisms which, while the presence of some might be accidental, pointed to the existence of a suppurative condition. Calomel, Mag sulph. and Na bicarb. were the drugs employed. This was the state of affairs on August 23rd, the day upon which the result of the urine examination was received, and on the 1st of September the urine cleared, while the report on the 8th stated that no blood had been passed for a week. The animal was now turned out to grass, but it had to be brought in next day, as it would not stay in the paddock. On the 25th of the month blood was again passed after exercise, and back-raking, enemata and massage of the bladder were resorted to. On the 12th of October, in view of the animal's age, and treatment having failed to arrest the passage of blood, it was decided to cast him. The report states, on the 3rd of November, that urine had been dribbling away continuously for the past fortnight, with violent attempts at micturition, and on that day the animal was destroyed. The following is the report of the *post-mortem* examination: Left kidney enlarged, with a little deep yellow pus present in the hilus. The right kidney was absent and there was no sign of there ever having been one. The bladder wall was half an inch thick; the mucous membrane was inflamed throughout and there was a large cystic calculus (3½in. by 3in. by 1½in.). The other abdominal organs were normal, but the right lung showed two emphysematous patches and the heart was enlarged and flabby. I produce for your inspection the radius, carpal and metacarpal bones from the first case and the cystic calculus from the second.

Another interesting case which recently came before my notice was that of a light draught mare, aged 16 years, which died suddenly while employed as one of a team in a gun carriage at a funeral. Shortly after moving off, the mare dropped dead in the traces. She was in good condition and there was nothing to lead one to suspect that she was in any way unfit. *Post-mortem* examination revealed that death was due to internal hæmorrhage, the result of rupture of the right renal artery.

Capt. MACARA-FINNIE: I have here a tumour which appeared on the right testicle of a cat. The animal was brought to me after the condition had actually been diagnosed by a veterinary surgeon some 40 miles away as a protrusion of the rectum. The cat was three years old and I castrated him completely and he has gone on perfectly well since.

(*To be continued*).

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Feb. 11th—Meeting of the Northern Branch, N.V.M.A. at Birmingham.
Annual Meeting of the Midland Division at Birmingham.
Feb. 17th—Annual Meeting of the Lincolnshire and District Division at Grantham.
Feb. 25th—Annual Meeting of the North Wales Division at Bangor.

Milk and Dairies Order, 1926.

The following paragraphs (18 and 19) appear (under the heading "Inspection of Cattle") in Circular 757 issued to County Councils and Sanitary Authorities in England and Wales by the Ministry of Health in connection with the Milk and Dairies Order, 1926:—

18. The Minister's view is that the minimum which could be regarded as satisfying the requirements of Article 8 of the Order would be such inspections as are necessary for the purposes of Sections 3 and 4 of the Act, and for investigating cases where some definite cause of suspicion exists, such as the discovery of tubercle bacilli in a sample of milk.

19. It is for each County Council to decide, according to the experience available in their area, what amount of further inspection is desirable. It was not considered practicable, in view of the varying circumstances of different counties, to require in the Order that County Councils should undertake the regular periodical inspection of all dairy cattle. Inspection conducted on purely routine lines may not, in all cases, be the best means of attaining the objects of the Act. The Minister is, however, aware that some Local Authorities have, in the past, carried out periodical inspections, and have been satisfied that the results were beneficial. Where these conditions exist it is suggested that the County Council should consider the advisability of continuing the established practice.

Meat Inspection Conference.

The National Federation of Meat Traders' Associations (which comprise 294 Master Butchers' Associations in England and Wales) are at present sitting in conference with a Committee of the Royal College of Veterinary Surgeons on the question of the capability and necessary qualifications of Meat Inspectors. The representatives of the meat traders are Mr. A. H. Watt, of Leeds, the National Federation President; and members of the Executive Council and the Royal College of Veterinary Surgeons are represented by Colonel Brittlebank (the President), Sir John M'Fadyean, and Professor Wooldridge.

Their joint conclusions so far—for the deliberations are to be continued—have reached the point that the Government is to be urged to appoint as chief inspectors of meat, veterinary surgeons only, and that subsidiary inspectors for local authorities shall be men drawn from the meat trade itself who have passed certain qualifying examinations.—*Yorkshire Post.*

R.C.V.S. Council Election.

Since the publication, in last week's *Record*, of the names of the gentlemen nominated for the forthcoming elections to Council R.C.V.S., we have been advised of the nomination of Major D. S. Rabagliati, Chief Veterinary Officer for the West Riding of Yorkshire. His proposers are Dr. O. Charnock Bradley and Mr. A. Gofton.

Animal Diseases Research Association of Scotland.

The Animal Diseases Research Association have appointed to the post of Junior Research Assistant Mr. A. Brownlee, B.Sc., M.R.C.V.S., who has recently taken up duty. Subsequent to qualifying as a Member of the Royal College of Veterinary Surgeons at the Royal (Dick) Veterinary College in 1924 and graduating in Veterinary Science at Edinburgh University in 1925, Mr. Brownlee gained experience of general veterinary practice in London and then became Assistant in the Pathology Department of the Royal (Dick) Veterinary College.

The Research staff of the Association is thus, for the first time since the resignation of Professor Gaiger in December, 1925, brought up to the full strength at present authorised by the Board of Agriculture for Scotland and the Development Commission.

Berwick-on-Tweed Corporation have decided to give free veterinary examination of cows in their borough every month, as a step towards the elimination of tuberculous animals from dairy herds. Berwick is probably the first Corporation in the country to do so.

Touching "Mrs. Trojan."

The following lines appeared in the *Morning Post* of January 25th:—

A Humane Fashion.

When of old a country maid
With her gentle shepherd strayed
Through the meadows, I have heard
That it frequently occurred
That a hair pin, more or less,
Loosed, perchance, by a caress,
Fell upon the verdant sward,
Where it lay, no doubt, ignored.
Later on the pretty cows
Of the farmer came to browse,
And it happened, it is said,
That some luckless quadruped
Swallowed with its midday meal
That unnoticed wire of steel.
Metal, it must be confessed,
Isn't easy to digest.
Later, Mrs. Cow complains
Of severe internal pains.
Farmer Jones is much upset,
Sends to fetch the nearest vet.:
But, though all his skill he tries,
Mrs. Cow lies down and dies,
And the autopsy will show
What it was that brought her low.
Nowadays, hairpins are seen
As objects few and far between,
And the grateful bovines bless
Pretty Chloe's thoughtfulness:
Since she cropped her lovely hair
Tragedies like this are rare.

TOUCHSTONE.

R.C.V.S. Library.

The following books have been added to the Library during the past week :—Miessner : " Epizootics and their control during War " ; Mumford : " The Breeding of Animals " ; Mayall : " Sheep and Goats " ; Laveran and Mesnil : " Trypanosomes and Trypanosomiasis " ; Walker : " Inspection of Fish, Poultry, etc." ; Walker : " Food Inspector's Handbook " ; Peacey : " Common Diseases of Pigs " ; Merillat : " Animal Dentistry and Diseases of the Mouth " ; Kaupp : " Anatomy of the Fowl " ; Sharp : " Ophthalmology for Veterinarians."

Books may be borrowed from the library by members of the College on payment of postage both ways. Apply to the Librarian, 10 Red Lion Square, London, W.C.1.

"*The Meat Industry.*" It is regretted that, in the review of this book by Dr. Cronshaw and Mr. Anthony, which appeared in our issue of January 22nd, no mention was made of the fact that the publishers are Messrs. Baillière, Tindall and Cox, 8 Henrietta Street, Covent Garden, W.C. 2.

The International Education Board of New York, one of the Rockefeller foundations, has presented £74,000 to the University of Edinburgh as a contribution to the new department of zoology, for which buildings are about to be erected.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Icterus in Ruminants.

To the Editor of The Veterinary Record.

Sir,—In reading up the physiology and pathology of the bile circulation recently, my thoughts turned to the frequency or otherwise of the occurrence of jaundice in cattle, and I found that I had no notes on the subject, nor could I call to mind ever having seen definite icterus in bovines. Liver disease is comparatively common, but a yellow or bile-stained condition of the mucous membranes and non-pigmented skin is certainly rare, and I am interested to know what the general experience of British practitioners is in regard to the matter.

Youatt devotes five pages to " Jaundice, or the Yellows," and gives a very vivid description of the disease. " There are few diseases to which cattle are so frequently subject, or which are so difficult to treat, as *jaundice*, commonly known by the appropriate name of the *yellows*." The author certainly possessed a fine ability to describe a disease, but one cannot help thinking that imagination must have played no small part in furnishing what the moderns would term " the syndrome," not only of this but of other diseases, and he states that : " The very hair gradually becomes yellow, and that the milk soon shares in the yellowness of the other secretions and acquires a bitter taste." It is curious that in a rectal examination of a case of red water or piroplasmosis the hand and arm may be stained distinctly yellow, but there will be no yellowness of the mucous membranes of the patient. It is interesting also to note that Youatt seems to have been well aware that bile becomes thicker during its continuance in the gall bladder : " A certain portion of the water which it contains is removed by the process of absorption." This function of concentrating the bile, on the part of the gall bladder, has only received much attention in recent years, and that mainly through the work of the surgeons, physiologists having scarcely mentioned it. It is said that a similar absorption is very active from the bile ducts in animals which have no gall bladder, and that it is in reality an important function.—Yours truly, F. T. Harvey.

Part-time Veterinary Inspectors in Scotland.

To the Editor of The Veterinary Record.

Sir,—In your account of the last quarterly meeting of Council of the National Veterinary Medical Association (*Veterinary Record*, January 22nd), Lieut.-Colonel Young, discussing the resolution from the West of Scotland Division, is reported to have said, " With regard to this resolution, I am informed that the action of the Scottish Board of Health is in exact accordance with the wording of the Act as it stands, and therefore I fail to see that we can take any immediate steps . . . ."

Let us refer to the Act. All it says in this connection is [Section 3 (2)] : " A Veterinary Inspector so appointed shall not engage in private practice in any district in which he holds office, save with the consent of the Board." Obviously, therefore, if the Board, instead of launching a campaign against part-time inspectors, had decided to approve of any part-time appointment proposed to them, their action would still have been in strict accordance with the wording of the Act as it stands. Only the consent of the Board is necessary, and not any alteration of the Act.

All part-time inspectors will agree that the remainder of Lieut.-Colonel Young's remarks were sympathetic and helpful.—Yours faithfully, Donald Campbell.

35 Calderwood Road,
Rutherglen,
27*th January*, 1927.

Hysteria in Dogs.

To the Editor of The Veterinary Record.

Sir,—I have observed the condition, as described above, since February, 1925, and at frequent intervals since, sometimes several in one household, of various ages.

I agree with Mr. L. W. Wynn Lloyd that the cause is to be looked for in certain types of meat biscuits, as since last May, when my suspicion of biscuits was first aroused, I have always asked what food has been used, and have found that meat biscuits have invariably been given.

A laxative, nerve sedative for a few days, and a change of diet usually effect a cure.—Yours faithfully, C. F. Shawcross.

Altrincham,
Cheshire,
31*st January*, 1927.

To the Editor of The Veterinary Record.

Sir,—Will my friend Mr. L. W. Wynn-Lloyd, F.R.C.V.S., kindly examine under the microscope some of the wax taken from hysterical cases and confirm his findings with the statements made on page 627 of Macqueen's Edition of Neumann's *Parasites and Parasitic Diseases of Domesticated Animals* ? These parasites very often produce various curious nervous symptoms, not only in the dog but also in the cat.—Yours faithfully, Henry Gray.

1 Redfield Lane,
S.W. 5,
28*th January*, 1927.

The Editor acknowledges the receipt of the following :—

Report of a meeting of the Lancashire Division, from Mr. J. Spruell, Hon. Secretary.

Communications from Dr. T. Hare, Major Eustace Montgomery, Messrs. R. L. Higgins, A. New and C. V. Watkins.

National Veterinary Medical Association of Great Britain and Ireland.

EDITORIAL OFFICE : 10 Gray's Inn Square, London W.C.1.

All communications relative to the literary side of the Veterinary Record must be addressed to the Assistant Editor, " Veterinary Record," 10 Gray's Inn Square, W.C.1